RTS™ Two Wire Intercom Series

innovating the future of communications

Technical Data Package
Models 802 and 802A
Master Station

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CHAPTER 1

Description, Operation, and Specifications

Model 802 Description / Operation

The Model 802 Master Station is a microprocessor-assisted communications control center. Each Master Station is a "stand alone" unit, that can be used either singly or in multiples. A Master Station can connect to, access, and control a variety of different communications systems, including RTS Systems:

1. "TW" intercom system
2. IFB System
3. Station isolate system

In addition, each Master Station functions as a multi-channel communications unit, used either:

- as a unit along a multi-unit conference bus or
- as a unit in multi-unit point-to-point matrix-style communications system or,
- as a combination of the above two bullets.

The Master Station Block Diagram, Figure 1, "Model 802 Block Diagram," on page 6, shows the Master Station functional components, input/output connections, and controls.

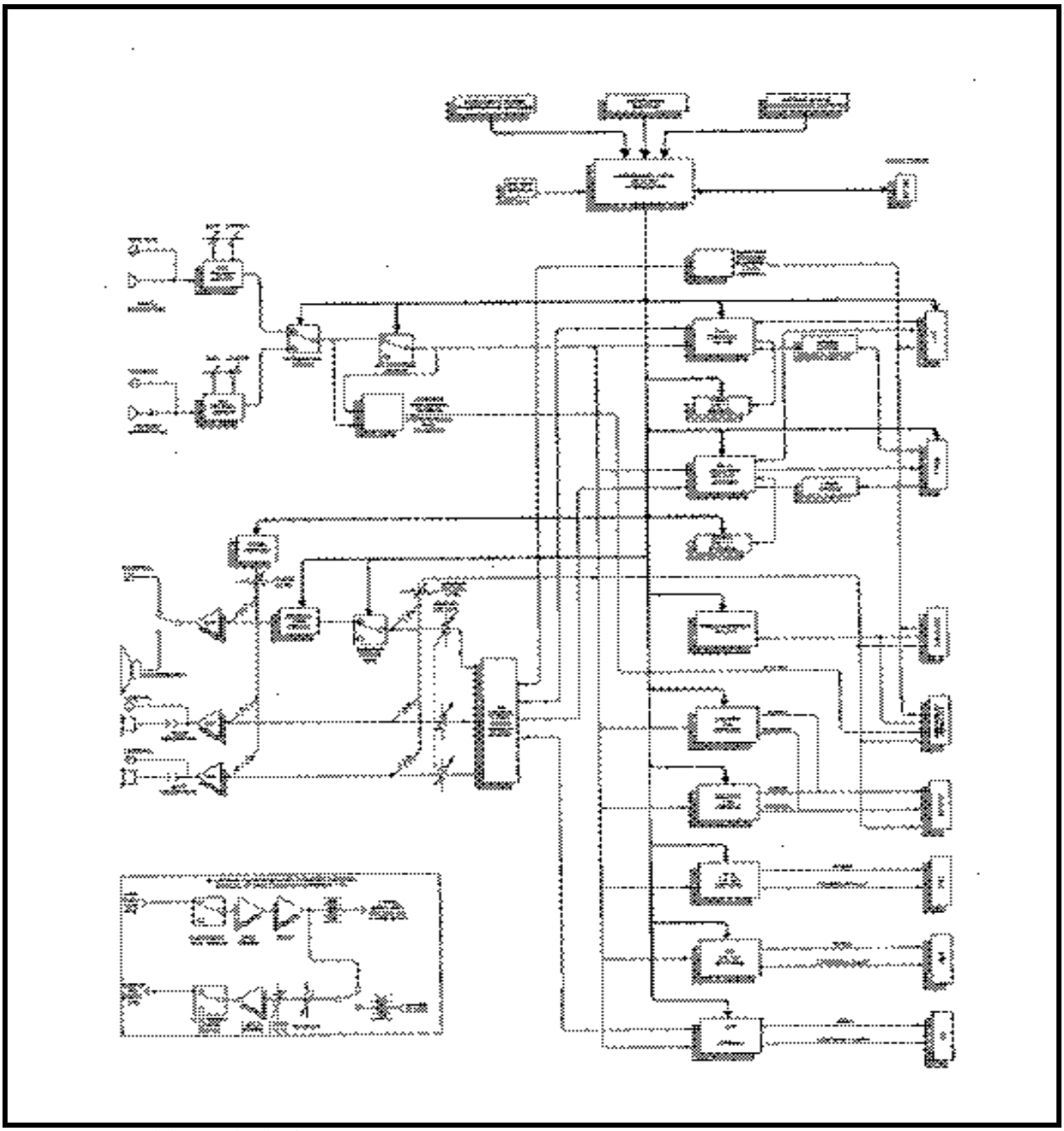


FIGURE 1. Model 802 Block Diagram

Functional Components

- Two microphone preamplifiers each with a limiter
- A panel microphone/headset microphone select electronic switch
- A microphone ON/OFF electronic switch
- "Talk circuitry" consisting of:
  Talk channel select electronic switches

"Bilateral current source" line drivers
Listen balance controls
Individual listen level controls
Individual listen electronic switches

- A 16-source listen assign switch matrix
- A "master" listen volume control
- A two-channel (stereo) headphone amplifier
- A speaker ON/OFF electronic switch
- A speaker "dim" electronic switch
- A speaker amplifier
- An internal speaker disable switch
- A microprocessor control system, which includes:
  Front panel button
  Talk and listen electronic switch control outputs
  Microphone and speaker electronic switch control outputs
  Relay control outputs (6)
  Key outputs (12)
  Headset present sense input
  User programmed memory with battery backup
  Adjustment board programming input switches (8)
  Mother board programming input switches (8)
  Additional outputs to control some options
  "Reset" switch (tells microprocessor to reconfigure, using adjustment and mother board programming inputs)
  Factory installed "firmware" (operating system for microprocessor)

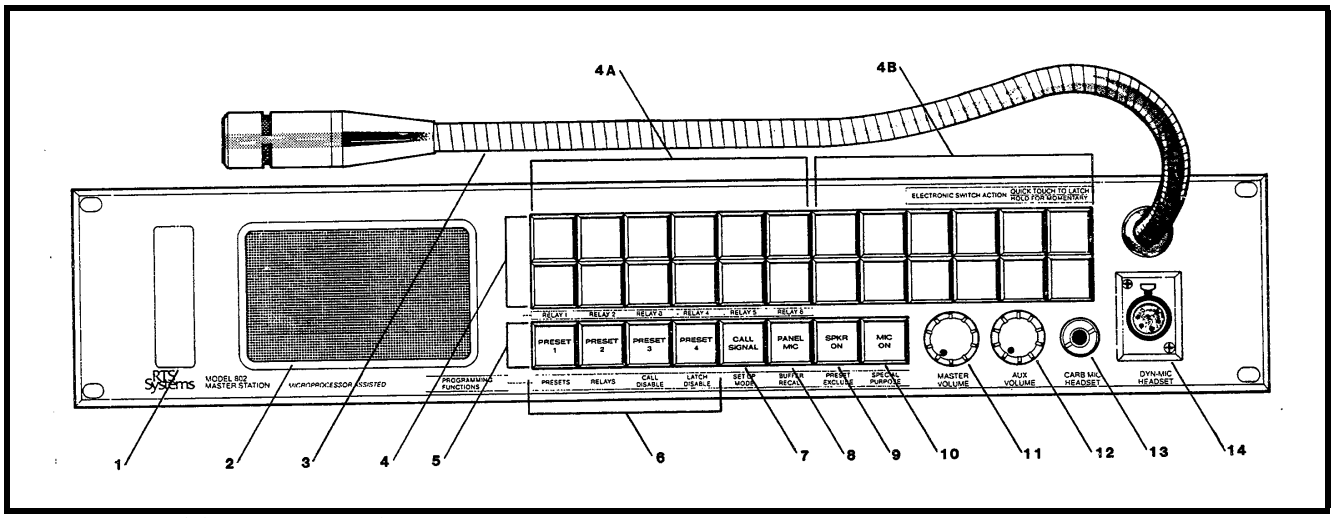


FIGURE 2. Model 802 Front Panel

Front Panel: Description and Operation

The front panel contains 24 selector buttons (4), eight operation buttons (5), master (11) and auxiliary (12) volume controls, loudspeaker (2), gooseneck microphone (3), dynamic (14) and carbon (13) microphone headset connectors, and access to the adjustment board (1).

The selection (4) and operation (5) buttons have different functions when the Model 802 is switched from the standard, “operating” mode to the “programming” mode. Legends under each button show its “programming” function. See “Programming the Model 802” on page 43 for programming instructions.

In the basic Model 802, the first twelve selection buttons (4A) activate the talk circuits (top buttons), and listen circuits (bottom buttons) of intercom channels 1 through 6. The remaining twelve selection buttons (4B) become operational with the addition of options. Normally, the eight operation buttons (5) work as follows:

Preset 1 through Preset 4 (6)

Preset 1 through Preset 4 can be user programmed to activate, by the push of a single button, combinations of audio and control circuits.

Call Signal (7)

The Call Signal button enables the signalling function, when the unit is equipped with this option.

Panel Mic (8)

The Panel Microphone enable button selects the front panel gooseneck microphone and deactivates the headset microphone; if no headset is plugged in, Panel Microphone is automatically selected.

Speaker ON (9)

The Speaker ON button turns on the loudspeaker. Note, the headset listen circuit is always ON.

Microphone ON (10)

The Microphone ON button turns on the microphone in use (headset or panel).

Most of the front panel buttons feature a special momentary/latching dual-action: if a button is pressed quickly, the function will “latch”, (turning “ON” if off, turning “off” if ON); if the button is head slightly longer, the action will be momentary and the function will turn OFF when the button is released.

NOTE: This “latching” function can be disabled, “LATCH DISABLE Programming Function” on page 46.

Master Volume (11)

The Master Volume control sets the level of the sum of all audio sources going to the left and right side of the stereo headphone and loudspeaker (exceptions: chime and squawk receive levels).

AUXiliary Volume (12)

The Auxiliary Volume control sets the level of the two auxiliary program audio inputs (and sends it to the Master Volume control).

Carbon Microphone Headset Jack (13)

The Carbon Microphone Headset Jack accepts a standard 3-conductor 1/4” phone plug. The necessary DC excitation voltage is provided to power carbon microphones or their electronic equivalent.

Dynamic Microphone Headset (14)

The Dynamic Microphone Headset connector accepts a stereo earphone, dynamic microphone headset.

Adjustment Board: Description and Operation

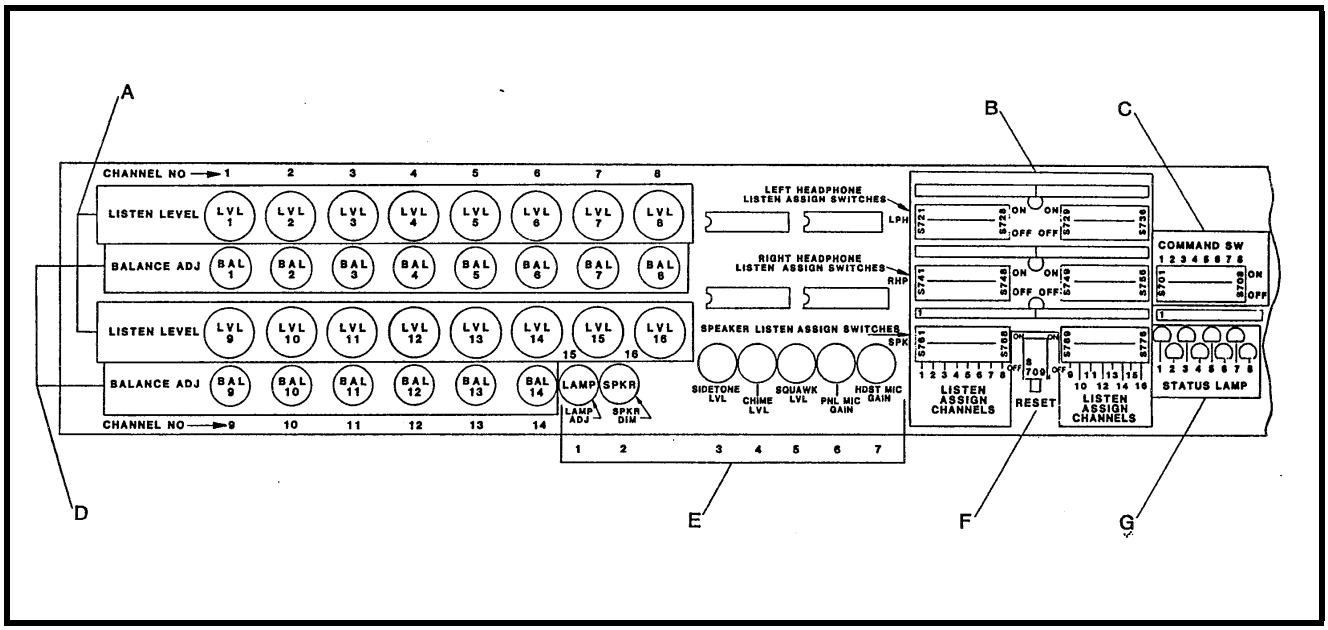


FIGURE 3. Model 802 Adjustment Board

The Adjustment Board is located to the left of the loudspeaker. Release the board by first pressing and releasing the small rectangular panel (1) on the front panel illustration, and then pulling it forward.

Located on the board are sixteen individual listen level controls (A), fourteen 4-turn 2wire intercom balance controls (D), seven auxiliary function controls (E), three groups of sixteen audio source assignment switches (B), eight programming switches (C), the microprocessor reset button (F), and the status indicator lamps (G).

Listen Level

The Listen Level controls (A) 1--12 adjust the incoming levels of the twelve primary intercom channels. Compensate for level differences by adjusting these controls.

Balance Controls

The Balance Controls (D) only function in the 2-wire intercom mode. Adjust the BALANCE control on each channel to null your own microphone signal in the loudspeaker or headphones. Channel 13 LISTEN and BALANCE controls are reserved for future use. LISTEN LEVEL controls 15 and 16 adjust the levels of the AUXILIARY PROGRAM inputs 1 and 2.

Auxiliary Control, Sidetone Level, Chime Level, Squawk Level, Panel Mic Gain, and Headset Mic Gain

In the Auxiliary Control section (E), the first control (E1) adjust the button illumination brightness, the second control (E2) adjusts the loudspeaker level change when the microphone is switch ON. The Sidetone Level (E3) adjust the loudness of your own microphone signal hear in your own headset. The Chime Level (E4) sets the volume of the incoming chime signal (when the chime option is installed). The Squawk Level (E5) sets the volume of the incoming squawk signal (when squawk option is installed). The Panel Mic Gain (E6), and Headset Mic Gain (E7) adjust the gain of the respective microphone preamplifier to compensate for the differences in microphone levels or individual's voices.

Assignment Switches

The Assignment Switches (B) assign the 16 primary audio sources in any combination to the left or right side of the stereo headset or to the loudspeaker. These 16 sources are:

Intercom Channels: 1- 12
"ISO" Listen
Auxiliary Program 1
Auxiliary Program 2
Spare

Reset and Status Lamps

The Reset button (F) is used to reset the microprocessor. This is required when initially installing certain options or making certain programming changes on the Mother Board. The Status Lamps (G) are used for diagnostic purposes.

Programming Switches

The Programming Switches (C) are used to set up various special operating modes. See Figure 36 on page 39for illustration.

Rear Panel: Description and Operation

The Model 802 is connected to other Model 802's, other systems, and external equipment using the connections on the Rear Panel.

The Line (2) connector, Ancillary (3) connector, and (8) screw terminal strips are present on the basic Model 802.

The optional IFB (4), Squawk (5), 4-wire (6), and ISO (7) connectors are installed only as a part of the various options.

The screw terminals, provide connections to the six sets of single-pole double-throw (SPDT=form C) relay contacts, microphone ON/OFF remote control (momentary action only -- not alternate actions), Model VCP 6 or VCP 12 ISO Control Station, external headset connector, external microphone input, auxiliary program inputs, microphone preamplifier output, external loudspeaker, and power input.

Line Connector

The Line connector contains the balanced audio circuits and keying circuits for intercom channels 1-12, as well as connection to Auxiliary Program Input 2. In normal 2-wire operation, each audio pair functions as a full-duplex two-way communication circuit; while, i8n the 4-wire mode, the pairs function as the send portion of each circuit assigned to 4-wire operation.

Ancillary Connector

The Ancillary Connector connects to:

1. six sets of programmable relay contacts
2. the microphone ON/OFF remote control
3. the squawk receive input
4. two auxiliary program balanced inputs.

IFB, Squawk, and ISO Connectors

The IFB, Squawk, and ISO connectors are plug-in compatible with Model 4010 Central Electronics, Model SQJ1010 Central Junction Interconnect, and Model VIE306 Station Isolate Electronics, respectively.

4-Wire Connector

The 4-Wire connector contains channels 1-12, 4-wire receive circuits, channels 7-12, 4-wire talk (send) circuits and channels 7-12 keying circuits.

Optional Aux Connector

The optional Aux Connector directly accesses the microprocessor via an RS-232 bus, only as a part of custom software applications.

Interfacing to Other Equipment

DIRECT: An 802 connects directly to external equipment via the line connector, the back panel terminals and the Ancillary connector.

SYSTEM: The Model 862 System Interconnect provides direct connection of up to 12 channels of TW Intercom, as well as audio inputs and output, and switching circuits. Signals interfaced via the 862 are common to all 812s in the system.

DIRECT with OPTIONS: An individual 802, equipped with standard options, can connect with Series 4000 IFB System or the TW Intercom Station Isolate System.

Specifications

Color:

Gray, Federal Stand 595A: Color #26492

Weight:

18 pounds (8.2 kilograms)

Dimensions

3.5 inches (89 millimeters) high x 19.0 inches (483 millimeters) wide x 14.3 inches (363 millimeters) deep (excluding connector/microphone and adjustment board clearances.

Inputs

Dynamic Microphone

Source Impedance

50-1000 ohms

Level

-55 dBu nominal

Carbon Microphone

Level

-15 dBu

Excitation

10 to 16 milliamperes

Four-Wire Receive Level

-20 ±10 dBu into 10 kilohms, balanced/floating

Squawk Input Level

0 ±10 dBu into 20 kilohms, unbalanced

Program Input Level

0 ±10 dBu into 20 kilohms, balanced/floating

Power

16-20 volts ac rms at 3 amperes max.

18-26 volts dc at 2 amperes max.

Outputs

Headphone Level

8 volts pp into 25 ohms

Speaker Level

10 volts pp into 8 ohms

Mic Out Level “LINE”

0 dBu nom., source: 400 ohms, balanced, floating

Mic Out Level “MIC”

-54 dBu nom., source: 10 ohms, balanced, floating

Relay Contacts

1 amp, 24 volts dc maximum (6V pp/600ohms)

0.5 amp, 110 volts ac maximum

Bilateral Line

10 milliamperes pp max (2V pp/200 ohms)

Driver Outputs

3 milliamperes pp avg (2/3 V pp/200 ohms)

4-Wire Send (Current Source) Output Levels:

10 milliamperes pp max (6V pp/600 ohms)

3 milliamperes pp max (2 V pp/600 ohms))

Key Outputs (Open Collector):

0.5 amperes, 50 volts dc maximum

Model 56-16 Power Supply

Input

117 volts ac ±10% 50/60 Hz, 1.7 amps

243 volts ac ±10% 50/60 Hz 0.85 amps

Output

16 volts ac, 3.5 amps

CHAPTER 2

Installation

Mechanical Installation

The 802 Speaker Master Station is a rack (or console) mountable enclosure, 3.5 inches (89mm) high by 19.0 inches (483mm) wide by 14.3 inches (363 mm) deep. The mounting holes are standard E.I.A. spacing. The panel microphone requires a minimum of 5.0 inches (127mm front panel clearance, and the adjustment board requires 11 inches 279mm). Allow an additional 2.0 inches (51 mm) for the rear panel connectors.

When installing this station, allow space for control access, cabling and servicing. Provide space for: cabling service loops, connectors, and cables. If the headset connector is remotely located, allow space between this cable and interfering sources such as TV monitors, power supplies and equipment with internal power supplies.

The Mode 56-16 power supply, when used, should be mounted at least 1 to 2 feet away from the Model 802 to minimize hum pickup.

Electrical Installation

Power

The 802 receives electrical power from either (1) the Model 56-16 ac power supply (supplies 16 vac at 3 amps) or (2) a user supplied system power supply. The power requirement for the Model 802 is 16-20 volts ac rms/e amperes or 16-28 volts dc 2 amperes. Input power (mains power) to the Model 56-16 is switch selected to either 120 vac ±10% or 230 vac ±10%, 50/60 Hz ±10%. Connect power to the Model 802 as shown in Figure 4 on page 14.

WARNING: For 230 volt operation, change fuse F1, on the Model 56-16, to a 0.375 amps slow-blow 3AG type. For metric style fuses, use part #2802-0006-00 (metric fuse adapter).

NOTE: Always connect the green safety wire from earth or safety ground to the chassis of the Model 802 (TB16-3).

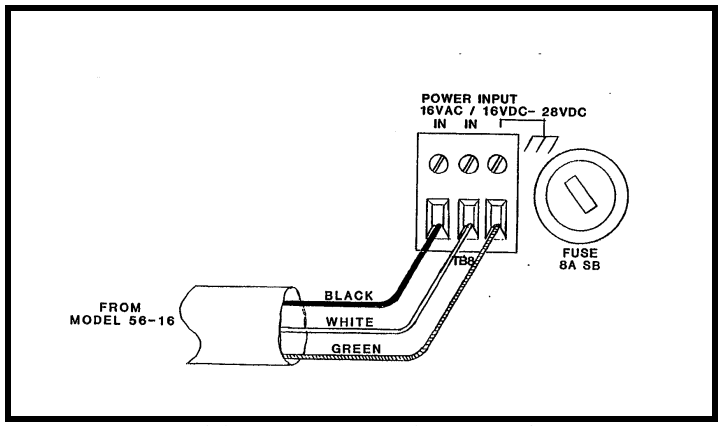


FIGURE 4. Model 802 Power Supply Connections

Grounding

The Master Station chassis should be connected to earth ground or power line safety ground. Each Master Station is bypassed to its own chassis via a 0.1 microfarad capacitor and 22 kilohm resistor in parallel to prevent interference from radio stations.

Signals - General

Model 802 system configuration are:

1. All Model 802 Master Stations
2. Model 802 Master Stations & Model 862 System Interconnect
3. Model 802 Master Stations plus TW Intercom System

In the “All Master Stations Configuration” (Figure 5 on page 15), interconnect the stations using Model 4025 splitter assemblies. Connect the Model 802 LINE connectors (J101) to the Model 4025 splitter assembly as show in Figure 5 on page 15. Terminate the system by connecting terminator plug of Figure 6 on page 15 to Model 4025.

In the “Master Stations and Model 862 Configuration” (Figure 7 on page 15), interconnect the stations using either the multiple connectors on the rear of the Model 862, Model 4025 splitter assemblies or a combination of both. Terminate the system by connecting terminator plugs (Figure 8 on page 16) to jacks J5 to J8 of the Model 862. Two terminators are required for a 6-channel system. Four terminators are required for a 12-channel system. On a 6-channel system, install terminator plugs in Model 862 “CH 1-2-3” (J5) and “CH 4-5-6” (J6) connectors. On a 12-channel system install terminator plugs in Model 862 “CH 1-2-3” (J5), “CH 4-5-6” (J6), “CH 7-8-9” (J7), and “CH 10-11-12” (J8).

To mechanically secure the cable to the Model 802 rear panel, do the following:

1. Remove the screw just to the left of J101.
2. Plug the cable into J101.
3. Secure the cable connector by screwing the captive screw in the connector into the hole left in step (1), above.
4. Use a cable tie to secure the other side of the connector, using the cable tie loop on the rear panel of the Model 802.

CAUTION: Using one screw only (and omitting the cable tie) to secure the cable connector may damage the rear panel connector.

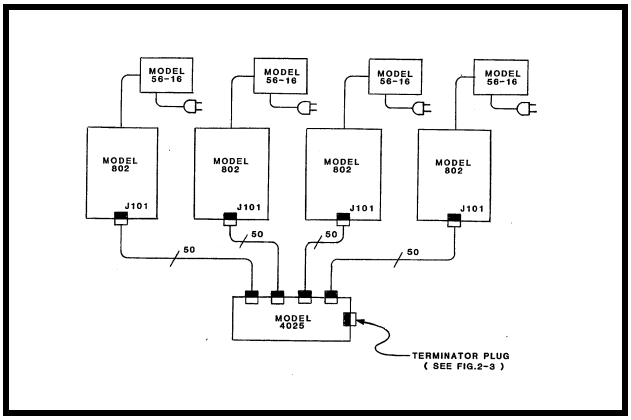


FIGURE 5. All Master Station System

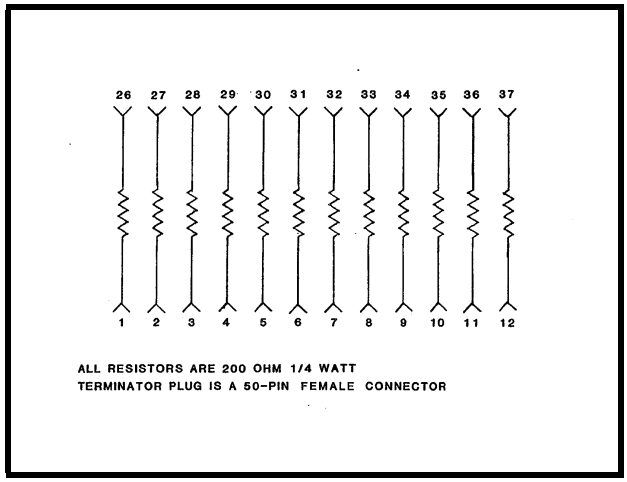

26 27 28 29 30 31 32 33 34 35 36 37
1 2 3 4 5 6 7 8 9 10 11 12
ALL RESISTORS ARE 200 OHM 1/4 WATT
TERMINATOR PLUG IS A 50-PIN FEMALE CONNECTOR

FIGURE 6. Terminator Plug

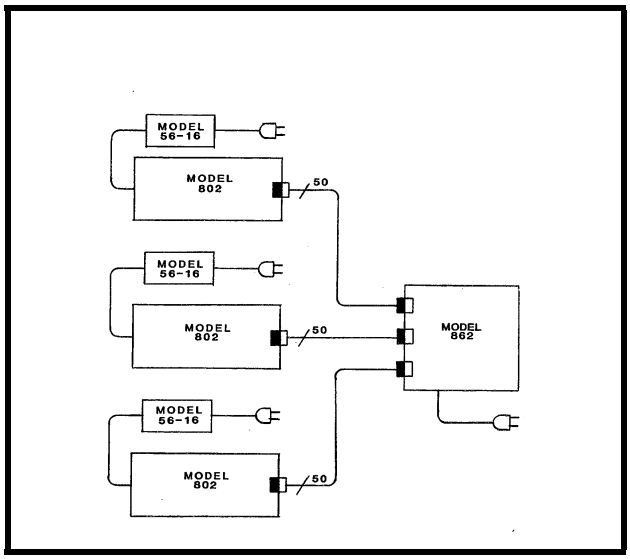


FIGURE 7. Master Station System with Model 862

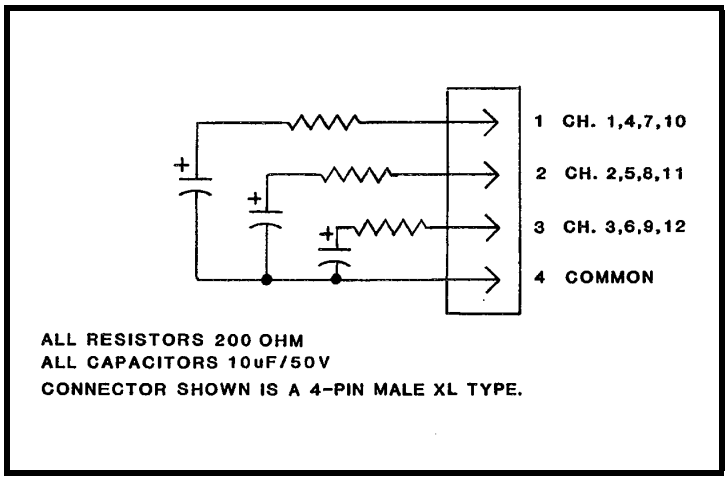


FIGURE 8. Terminator Plug for Model 862

The "Master Station plus TW Intercom System Configuration" includes one or more 802s, a Model 862 System Interconnect, and a TW Intercom System (Figure 10 on page 17). In this system, the master stations talk and listen between themselves and the TW user stations. The call light (optional) signals are also sent throughout the system.

This method allows an unrestricted channel assignment switching system to be used on the TW Intercom System. The TW portion of the system, (Figure 10 on page 17), consists of four Model PS31 (or PS-30) power supply systems and Model BP-300 user stations. To interface the TW Intercom System to the Model 802 Master Station System, connect PS-31 (PS-30) #1 output 1-2-3 to 862 input "CH 1-2-3" (J5). Connect PS-31 (PS-30) #2 output 1-2-3 to 862 input "CH 4-5-6" (J6). If a 12-channel master station system is being interfaced, connect PS-31 (PS-30) #3 output 1-2-3 to 862 input "CH7-8-9" (J7 and PS-31 (PS-30) #4 output 1-2-3 to 862 input "CH 10-11-12" (J8)

Not all channels need to be connected between the 862 and the PS-31s (PS-30s). For example, to convert channel 12 on the master stations to be private channel for communications between 802s only, do not connect pin 3 of the 862s 10-11-12 input connector but terminate instead with a resistor as show in Figure 9 on page 17. This procedure may be used to isolate any one channel or combination of channels. Note, any channel not connected to an external TW channel must be terminated with a 200 ohm resistor and 10 microfarad capacitor as show in Figure 8 and Figure 9. Connect output from the 802s line connector (J101) to the line inputs on the 862.

To mechanically secure the cable to the Model 802 rear panel, do the following:

1. Remove the screw just to the left of J101.
2. Plug the cable into J101.
3. Secure the cable connector by screwing the captive screw in the connector into the hole left in step (1), above.

4. Use a cable tie to secure the other side of the connector, using the cable tie loop on the rear panel of the Model 802.

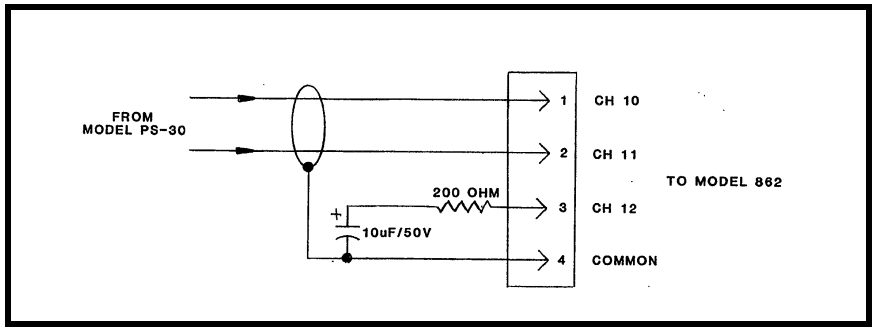


FIGURE 9. Channel 12 Termination

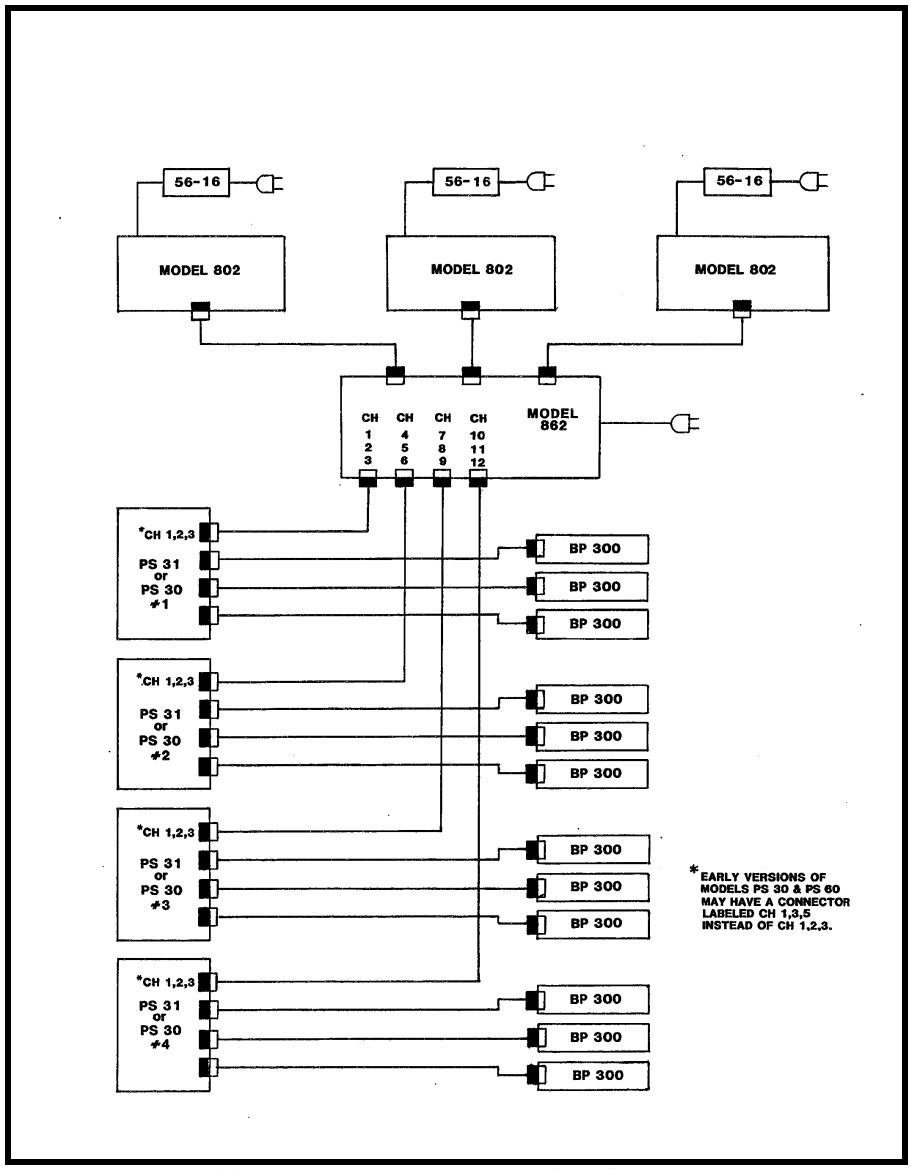

56-16
56-16
56-16
MODEL 802
MODEL 802
MODEL 802
CH 1 2 3
CH 4 5 6
CH 7 8 9
CH 10 11 12
MODEL 862
*CH 1,2,3
PS 31 or PS 30 #1
PS 31 or PS 30 #2
PS 31 or PS 30 #3
PS 31 or PS 30 #4
BP 300
*EARLY VERSIONS OF MODELS PS 30 & PS 60 MAY HAVE A CONNECTOR LABELED CH 1,3,5 INSTEAD OF CH 1,2,3.

FIGURE 10. Model 802/TW Intercom System Bloc Diagram

Some block diagrams in this manual use codes contained in Table 1, Connector Code Table. Note, in this table, only chassis-mount connectors are specified. All male connectors are colored black.

TABLE 1. Connector Code Table

CODE	PART NO.	CONNECTOR DESCRIPTION
A	XLR-3-31	Audio, chassis mt., Female, 3-pin
B	XLR-3-32	Audio, chassis mt., Male, 3-pin
C	XLR-4-31	Audio, chassis mt., Female, 4-pin
D	XLR-4-32	Audio, chassis mt., Male, 4-pin
E		Microribbon Type, chassis mt., Male, 50-pin
F		Microribbon Type, chassis mt., Female, 50-pin
G		“D” Type, chassis mt., Male 25-Pin
H		“D” Type, chassis mt., Female 25-Pin
J	456	“C” Type, chassis mt., Male 6-Pin
K	453	“C” Type, chassis mt., Male 4-Pin
L		5-way binding pose, dual assembly
M	XLR-5-31	Audio, chassis mt., Female, 5-pin
N	XLR-5-32	Audio, chassis mt., Male, 5-pin
P	452	“C” Type, chassis mt., Male, 3-pin
Q	D6F	Audio, chassis mt., Female, 6-pin
R	D6M	Audio, chassis mt., Male, 6-pin
S	R05-R5M	BNC Type, chassis mt., Male, 6-pin
T		“D” Type, chassis mt., Female, 9-pin
U		Terminal, Bare Wire (Weidmuller)
V		Screw terminal, barrier strip
W		Phone Jack, 2-circuit, shorting & non-shorting
X		Phone Jack, 3-circuit, shorting & non-shorting
Y		Phono Jack,
AA		Mini-Jack, Female

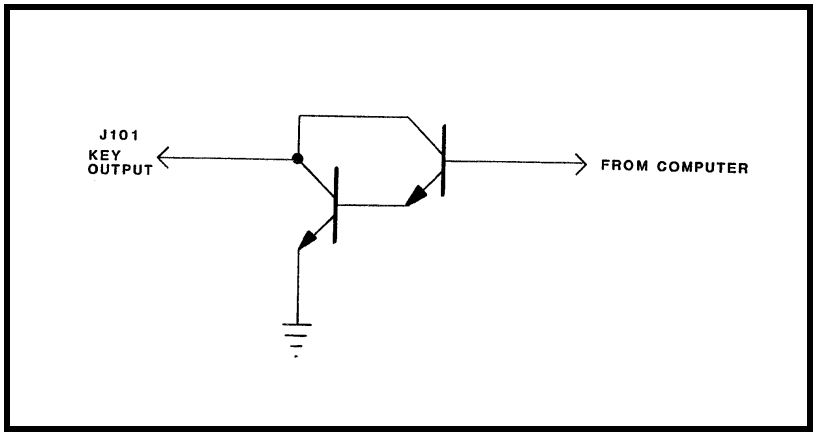


FIGURE 11. Darlington Key Output

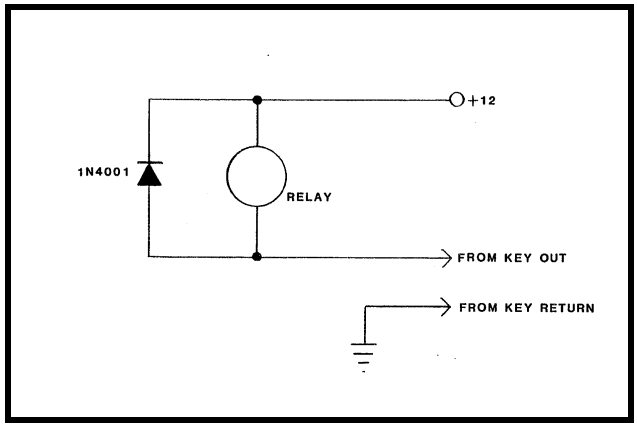


FIGURE 12. Key Output Application

Signals - Features

Key Outputs

Twelve logic-type outputs are available at the rear-panel line connector, J101. These outputs control relays in the Model 862 System Interconnect, but if your system does not include a Model 862, these output may be used directly as control outputs. Press one of twelve talk buttons on the front panel of the Model 802 activates one of the twelve key outputs (respectively). Connections to these output are shown on sheet 20 of the Model 802 schematic. Figure 11 on page 18 show a typical output. The darlington transistor output conducts to ground, when activated, and has a maximum rating of 50 volts, 50 milliamperes, dc. Figure 12 shows an application of the key output.

NOTE: Relays should always have a diode to protect the transistor in the Model 802.

Relay Output (See Figure 13)

Six form C relay contacts are available on the Model 802 rear panel. The respective relays are programmable from the front panel to operate with front panel pushbutton(s) (See “Programming the Model 802” on page 43). Maximum contact ratings are: 1 amp at 24 volts dc, or 0.5 amp at 110 vo.lts ac.

NOTE: Applying voltages over 32 volts is not recommended. Relay programming is discussed in “RELAYS Programming Function” on page 45.

External Microphone Switch (See Figure 13)

Connect an external or remote microphone switch to TB7 (using labels above TB7 for exact connection). When the switch is closed the microphone will turn ON and will be indicated by the front-panel MIC ON switch being brightened. The remote switch is not alternate action and requires a maintained contact. When the remote switch is OFF, the microphone may be turn ON locally, but when the remote switch is ON, the microphone may NOT be turned OFF locally.

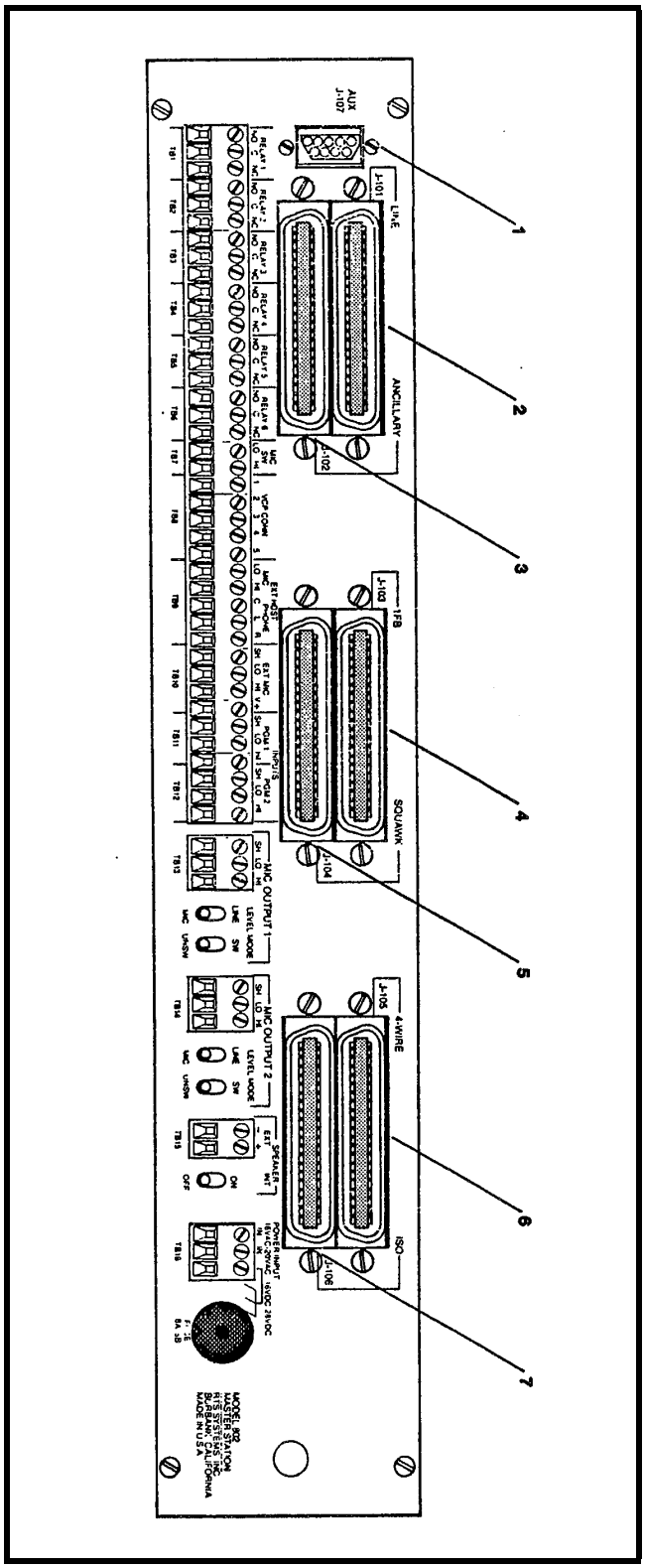


FIGURE 13. Model 802 Rear Panel Connections

VCP Connector (See Figure 13)

The rear-panel terminal block, TB8, has connections to interface to a “video-iso” system, and a “squawk” system.

External Headset Connector (See Figure 13)

Connect external headphones to TB9. Make sure that the external headphones connections are separate from any microphone connections, or oscillations will occur. TB9 is paralleled with the front-panel headset connector; use only one at a time.

External Microphone Connector (See Figure 13)

An external microphone may be used in place of the front-panel gooseneck microphone by connecting the external microphone to rear-panel terminal block TB10. When using an external microphone, disconnect the front panel microphone by unplugging connector, P1, from the motherboard.

Electret microphone may also be used with the Mode 802. Both 2-wire and 3-wire microphones are accommodated. To use a 2-wire electret microphone, install resistor R3 on the motherboard.

Program Inputs (See Figure 13)

Connect external program input to rear panel terminal block TB11 and TB12. These inputs accept line level balanced audio. Program volume level is controlled by front panel AUX VOLUME control, adjustment board pots 15 and 16, and front panel MASTER VOLUME control. Program may be assigned to left headphone, right headphone, or speaker by switches on the adjustment board. Alternatively, program #2 audio may be injected at the Model 862 System Interconnect to all master stations, or audio appearing at Program input #2 of any Model 802 will appear on all Model 802s.

Microphone Output Connectors (See Figure 13)

Two microphone outputs are provided via rear panel terminal blocks TB13 and TB14. A rear panel LEVEL switch selects low level (MIC) or high level (LINE) output A separate MODE switch for each output determines whether an output is controlled by the MIC ON/OFF switch.

External Speaker Output (See Figure 13)

Connect an external speaker to rear panel terminal block TB15. Since this output is a bridging type output, DO NOT LET EITHER SPEAKER LEAD CONTACT GROUND. The switch next to TB15 turns OFF the internal speaker.

Headsets

Headset Requirements

A wide range of headset type may be used:

Dynamic Microphone Headset Type:	Carbon Microphone Headset Type:
50 to 1000 ohm microphone	Standard carbon microphone
25 to 1000 ohm headphone(s)	25 to 1000 ohm headphone(s)

Use headphones with an impedance pf 25 ohms or greater. Low impedance 8 ohm headphones are not recommended. Headphones with good acoustic isolation (20 to 40 dB) improve communication in high ambient noise environments, and allow the user to use the headphones at a less tiring, lower volume.

In the headset connecting cable, prevent coupling between the microphone and headphone leads by using a shielded, twisted pair for the microphone, and a separate, twisted pair for the headphones. Do not allow headphone ground to contact microphone ground or shield. Tie the shield to microphone ground or “mic low”. The headset cable can be made longer when the microphone and headphone pairs are physically separated. The wider the separation, the long the cable length which may be used. Estimated maximum usable headphone cable lengths are as follows:

Single cable, two shielded twisted pair: 10 feet (3.05 m).
Dual ribbed cable, two shielded twisted pair: 30 feet (9.14 m).
Separate cables, shielded twisted pair in each: 50 feet (15.24 m).
Balanced microphone input: up to 100 feet (30.48 m).

Headset Connections

Dynamic Microphone Headset Connector:

XLR-5-31 type receptacle

Input Level:

-55 dBV

Output Level to headphone:

10 volts peak-to-peak open circuit

Pin 1	Microphone low
Pin 2	Microphone high
Pin 3	Headphone low
Pin 4	Left Headphone high
Pin 5	Right Headphone high

Carbon Microphone Headset Connector

Standard 1/4” Tip-Ring-Sleeve (TRS) Phone Jack

Input Level

-15 dBV nominal

Output to Headphone

10 volts peak-to-peak open circuit

Tip	Carbon Microphone
Ring	Headphone
Sleeve	Common/ground

Model 802 to Model 801 / Model 860

If the Model 802 has been equipped with an “801 emulate” option, a connector on the rear panel of the Model 802 plugs directly into an “801” type system.

If it is required that a non-801 emulate type 802 be used in an “801” type system, follow the directions below:

Case 1:

Six channels of intercom, no SAs, no IFBs, no Slate, no Monitor Mute: use a standard six channel Model 802 to connect to a six channel “801” system. A wiring diagram for connecting a 6-channel Model 802 to an 801 system is shown in Figure 14. Install button legends per Figure 15 on page 24.

Case 2:

Six channels of intercom, SAs, IFBs, Slate, Monitor Mute: Use a 12-channel Model 802 (equipped with the Talk option) and connect using the wiring diagram in Figure 16 on page 24. Install button legends per Figure 17 on page 25. This wiring will operate all relays in the 860. In a 12-channel 802, program one of the relays to activate when SLATE MIC is pressed. This relay is equivalent to the slate-mic/radio-telephone relay available on J2 of the Model 801

Program another relay to activate when SPKR MUTE is pressed. This relay is equivalent to the monitor mute relay contacts available at J4 on an 801. This relay may also be programmed to activate when an SA button is pressed. Thus if SA1 is used as a studio announce, the studio speaker nearest the 802 may be muted via the relay when its SA1 button is pressed. This will prevent feedback squeals.

Model 801s may also be used in an 802/862 system. Make connection between the systems as shown in Figure 18 on page 25. Be sure that termination is provided by only one system. Note, some connections are optional. The standard connections allow the six talk and listen channels of the 801 to communicate with the first six talk and listen channels of the 802. The optional connections interface the next five channels of the 801 to channels 7-11 of the 802. SA and IFB channels on the 801 can only talk and can not listen. SLATE is a 2-way line and will work to both talk and listen. Listen level on the SLATE line is controlled by the EXT. 2 level knob. The key connections allow the 801 to operate relays 7-11 in the 862.

For more information on 801/860 systems, see the 801 technical manual TM2604.

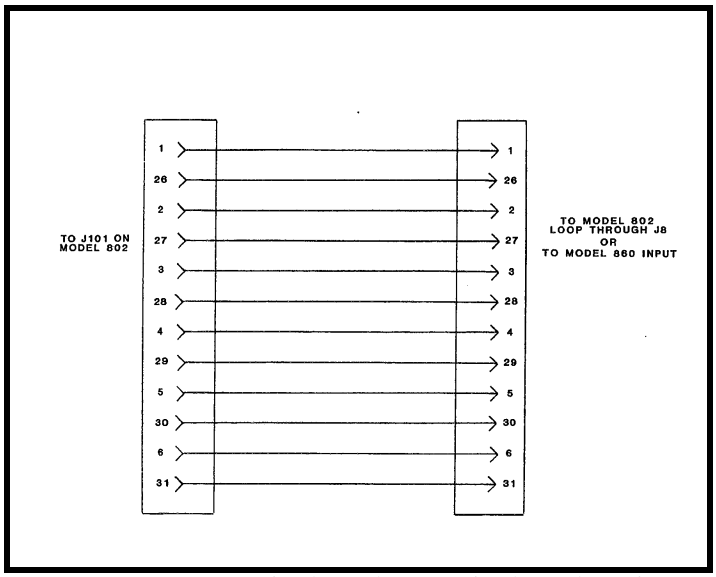


FIGURE 14. Case 1: Six channel 802 to six channel 801 interconnection.

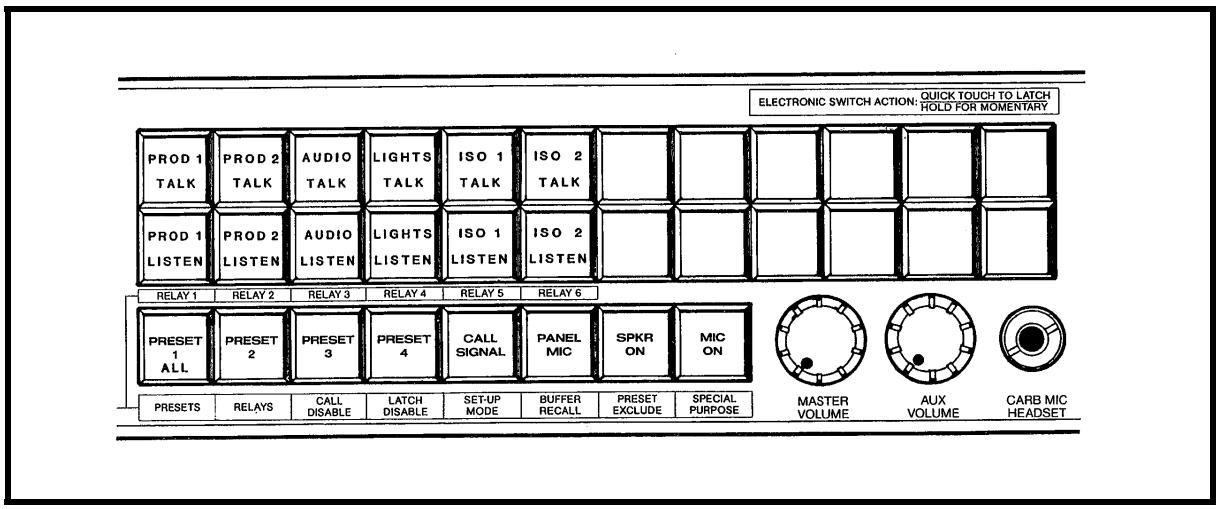


FIGURE 15. Case 1: Front Panel Button Legend

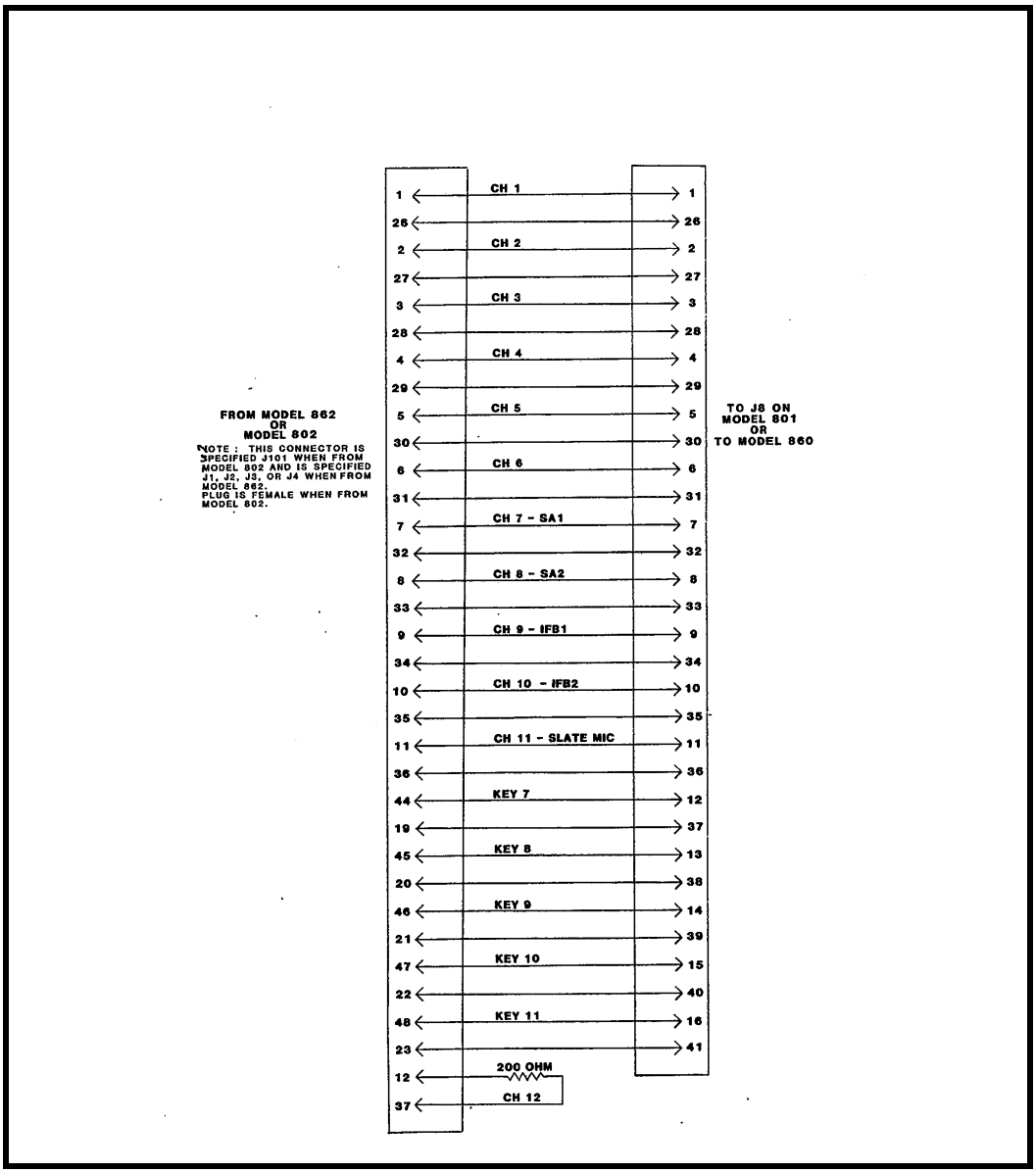

FROM MODEL 862 OR MODEL 802
NOTE : THIS CONNECTOR IS SPECIFIED J101 WHEN FROM MODEL 802 AND IS SPECIFIED J1, J2, J3, OR J4 WHEN FROM MODEL 862. PLUG IS FEMALE WHEN FROM MODEL 802.
CH 1
CH 2
CH 3
CH 4
CH 5
CH 6
CH 7 - SA1
CH 8 - SA2
CH 9 - IFB1
CH 10 - IFB2
CH 11 - SLATE MIC
KEY 7
KEY 8
KEY 9
KEY 10
KEY 11
200 OHM
CH 12
TO J8 ON MODEL 801 OR TO MODEL 860

FIGURE 16. Case 2: 12-channel 802 to 6-channel 801 Interconnections

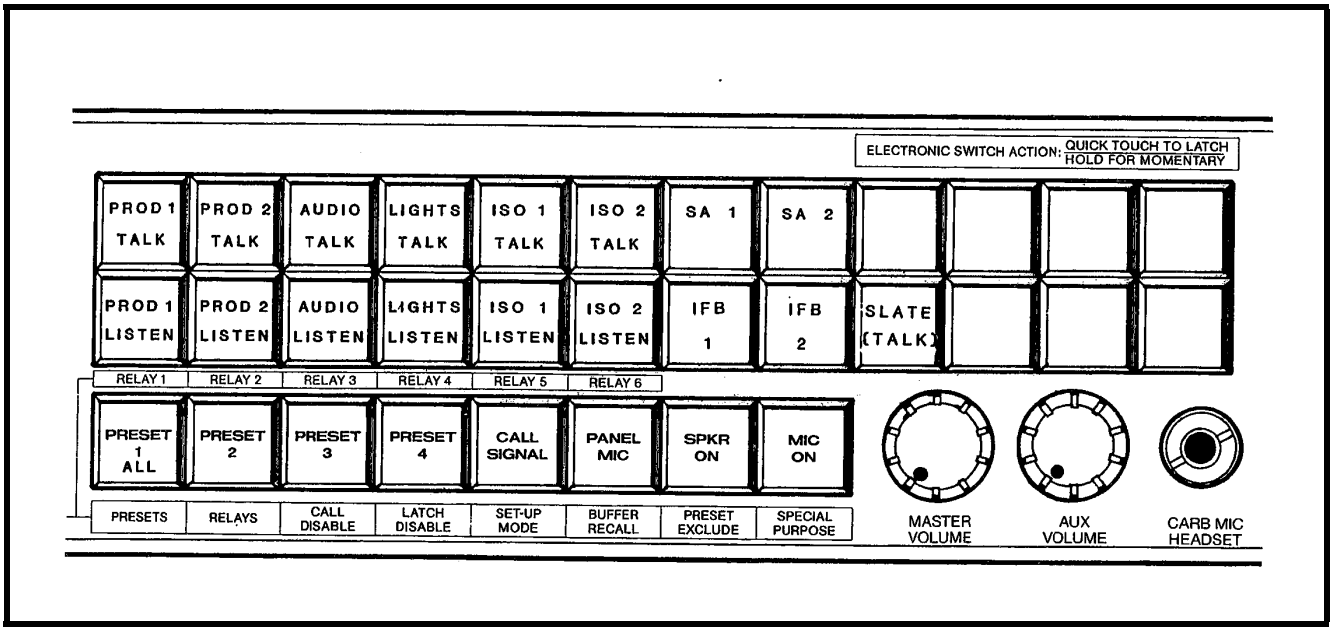


FIGURE 17. Case 2: Front Panel Button Legend

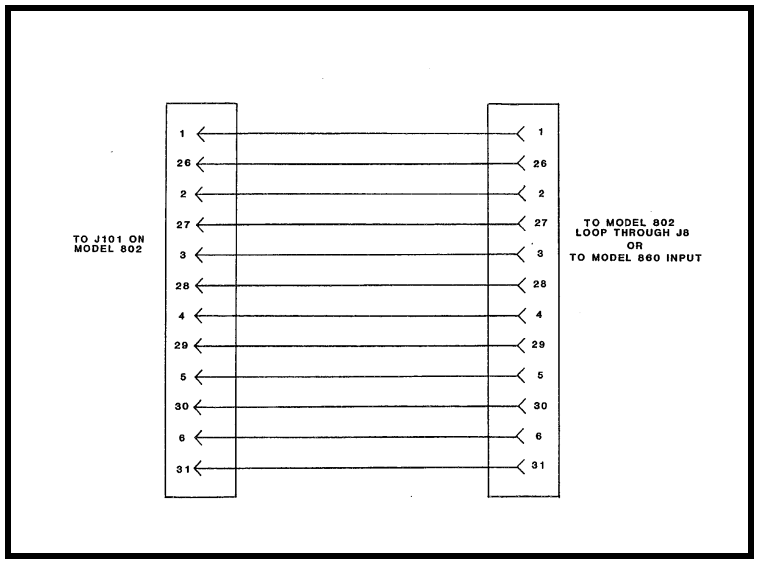


FIGURE 18. Using a Model 801 in a Model 802 System

Model 802 - Telephone

The Model 802 may be interfaced to telephone lines as follows:

Method 1:

Connect a party-line (PL) channel from either one 802 or from an 862 to either a dry or wet phone line via a step-up transformer as shown in Figure 19 on page 26. Terminate the phone line with an 820 ohm resistor across the transformer

secondary (phone line side). The transformer is large enough so that it can be directly connected across a “wet” line (line with dc current) with negligible ac performance degradation; the secondary is low enough resistance so that it will “hold” the line.

Method 2:

Connect a TWI-222T-telco interface unit as in Figure 20 on page 27.

Method 3:

Connect a TWI-326 interface unit usingFigure 21 on page 27.

NOTE: The 200 ohm resistor termination is not required if a PS-31 (PS-30/60) is also connected.

Method 4:

Connect a Model 802 with 4-wire option (OPT802-C2, or OPT803-C3) to a TWI-326 as shown in Figure 22 on page 28. This method will work better than the two methods above.

NOTE: Termination must be provided.

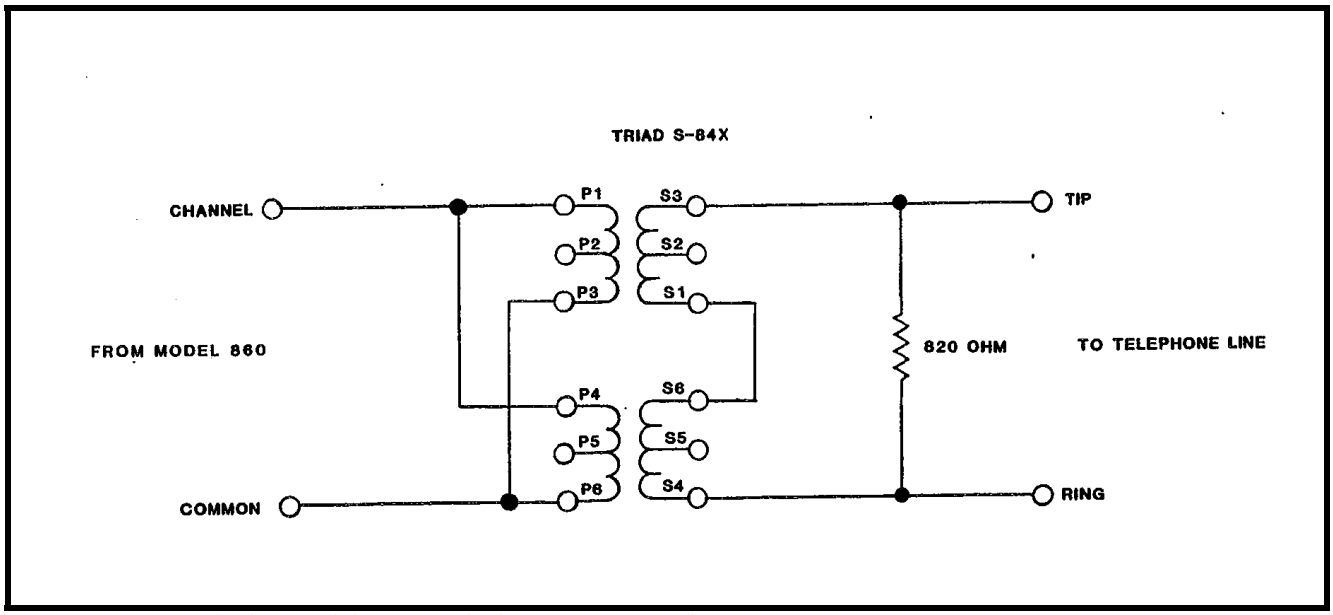


FIGURE 19. Method 1: Model 802 to Telephone Interconnection

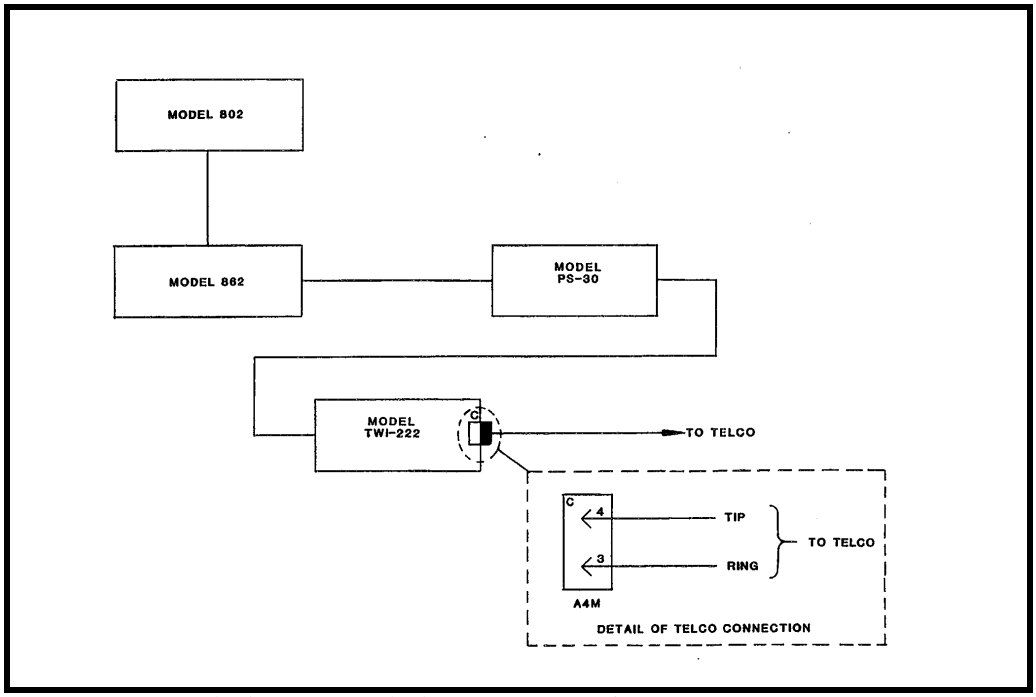


FIGURE 20. Method 2: 802 to Telephone Interconnection

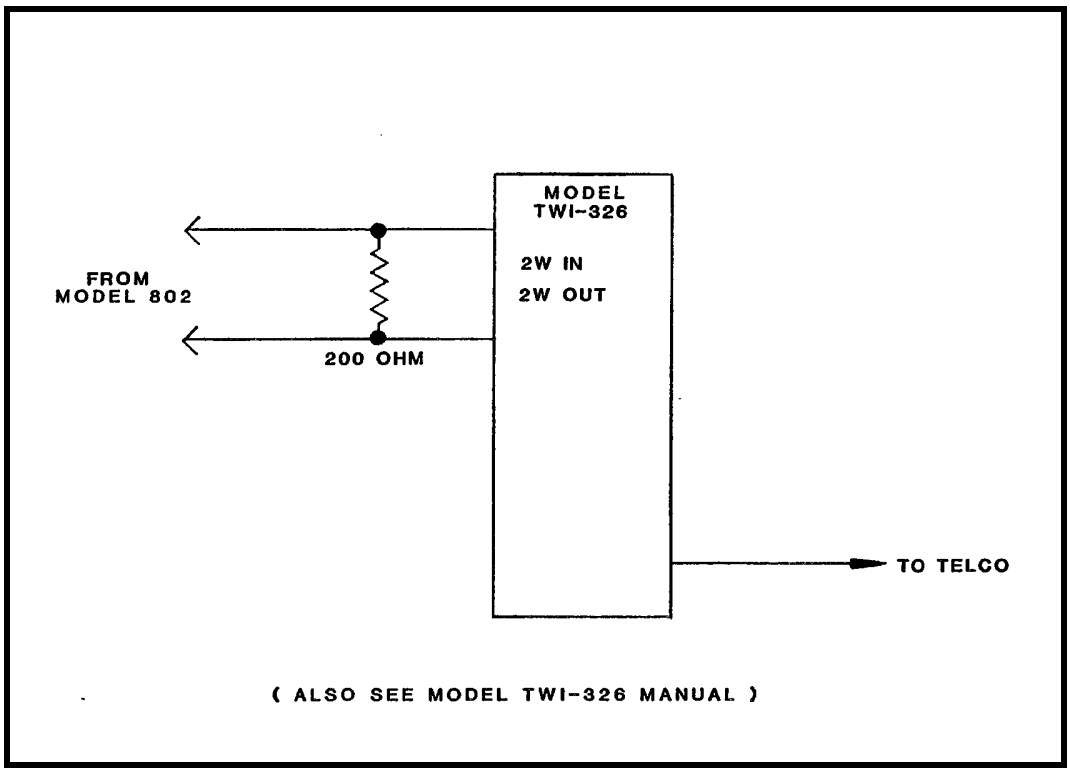


FIGURE 21. Method 3: Model 802 to Telephone Interconnection

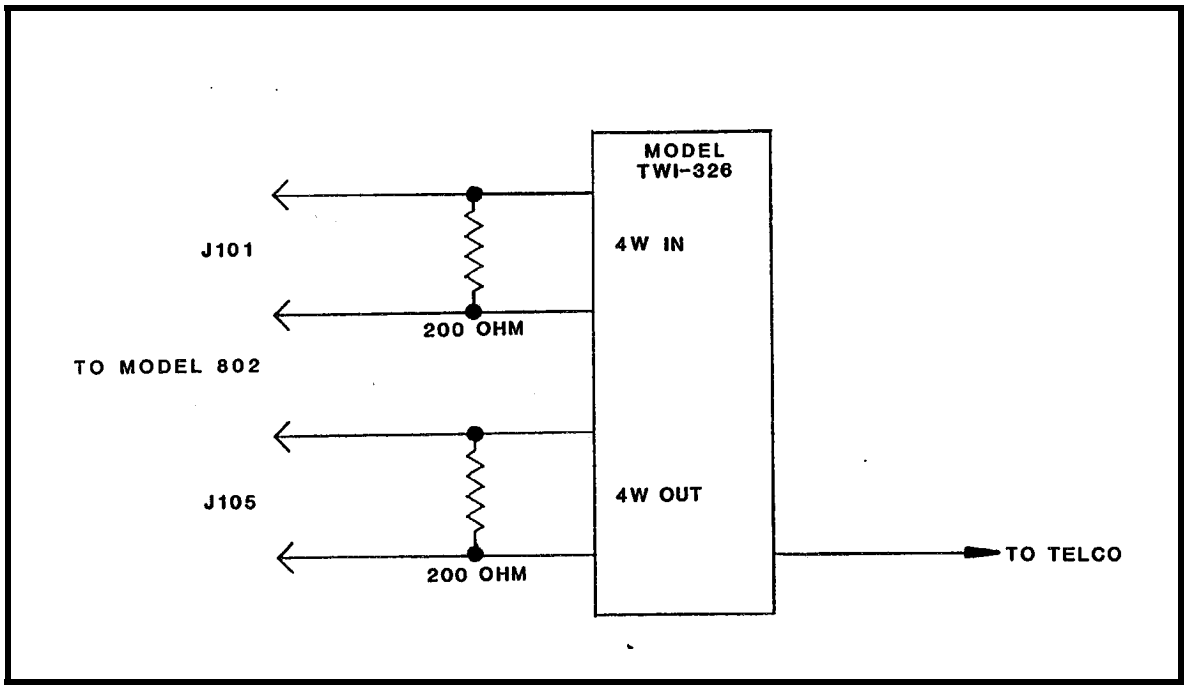


FIGURE 22. Method 4: Model 802 to Telephone Interconnection

Model 802 - Series 4000 IFB

The Model 802 may be used in either of two ways with the 4000 series IFB system. Method “A” uses a line level, unswitched microphone output from the Model 802 to drive Models 4001, 4002, or 4003 IFB Control Stations. Method “B” emulates either a Model 4001 or 4002 IFB control station and requires no external parts, but it does require: 1) the installation of one or two IFB option boards, 2) that mother board programming switch(es) be actuated and 3) a microprocessor reset be executed.

To use Method “A”, connect the Model 802 (rear panel) MIC OUTPUT 1 or MIC OUTPUT 2 to Models 4001, 4002, 4003 IFB Control Stations. Use the instructions for the “Line-level inputs” in the IFB Technical Manual, TM2594. Note, on the 4000 series control station, R11 must be removed and a trace cut. Interconnect the IFB system and configure the 4001, 4002, or 4003 for power input and priority as described in the IFB Technical Manual TM2594 and Figure 23 and Figure 24. Move the 802’s LEVEL switch to UNSW. Do not connect the shield at the 802 end of the cable.

Method “B” IFB (See Figures 25, 26, 27, and 28) requires both an option base (OPT802-A1) and IFB option(s). To emulate a model 4001 IFB control station option OPT802-G1 must be installed. To emulate a model 4002 IFB control station, both the OPT802-G1 and OPT802-G5 options must be installed. Note, if both IFB options are installed the “Iso” option cannot be installed. If the IFB priority need to be changed, consult the IFB Technical Manual TM2594.

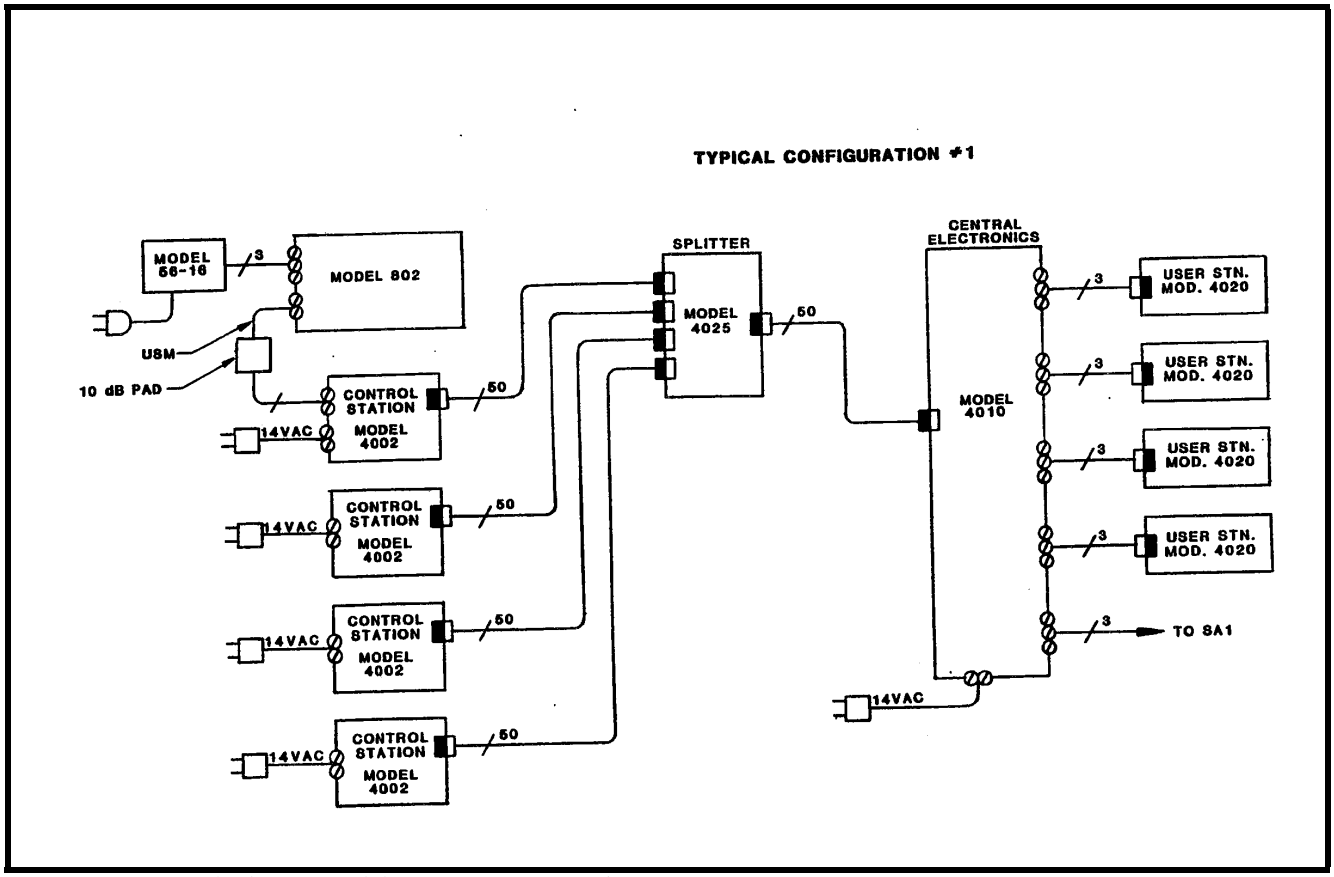


FIGURE 23. Method "A": Model 802 to IFB Connection (4 IFBs)

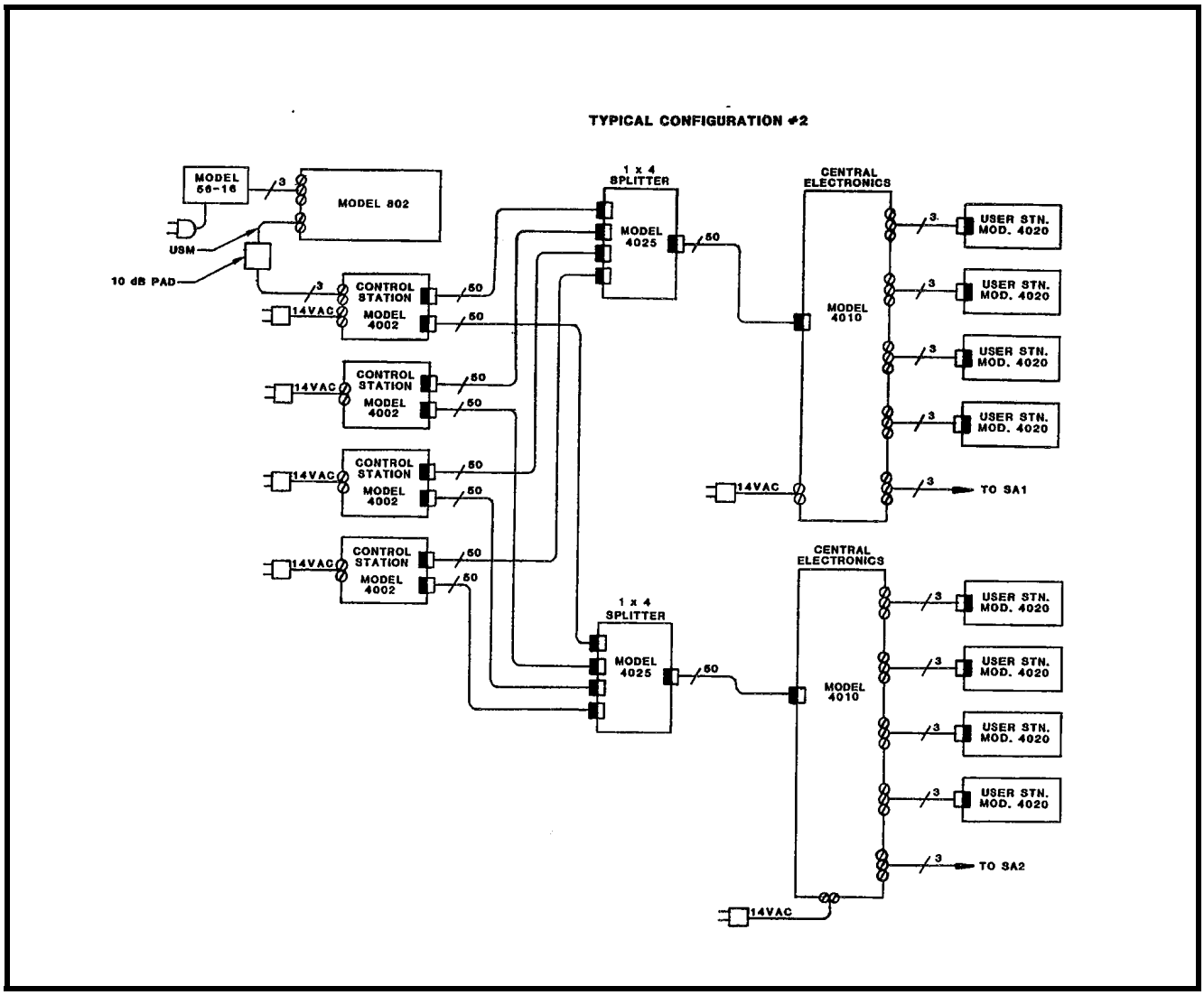


FIGURE 24. Method "A": Model 802 to IFB Connection (8 IFBs)

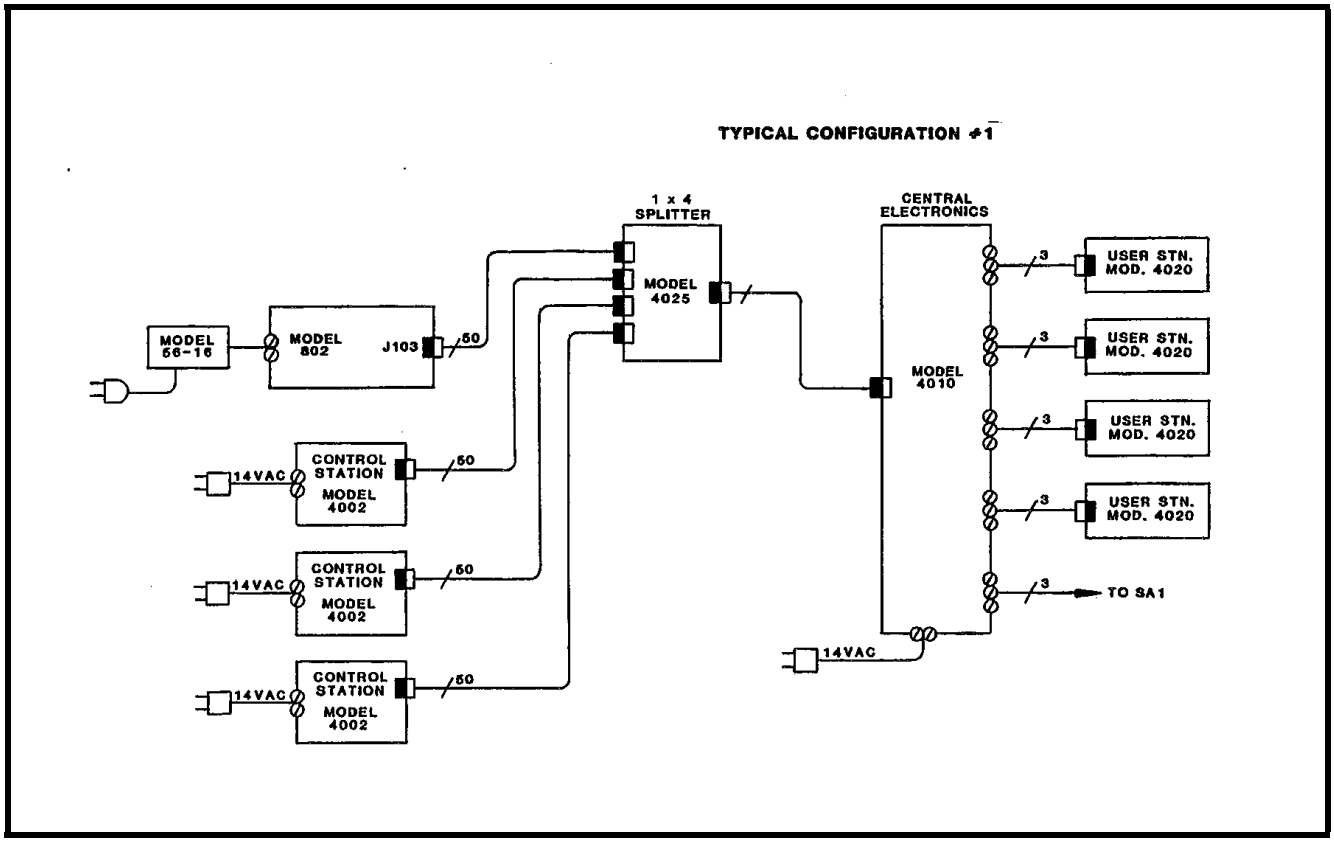


FIGURE 25. Method "B": Model 802 to IFB Connections (4 IFBs)

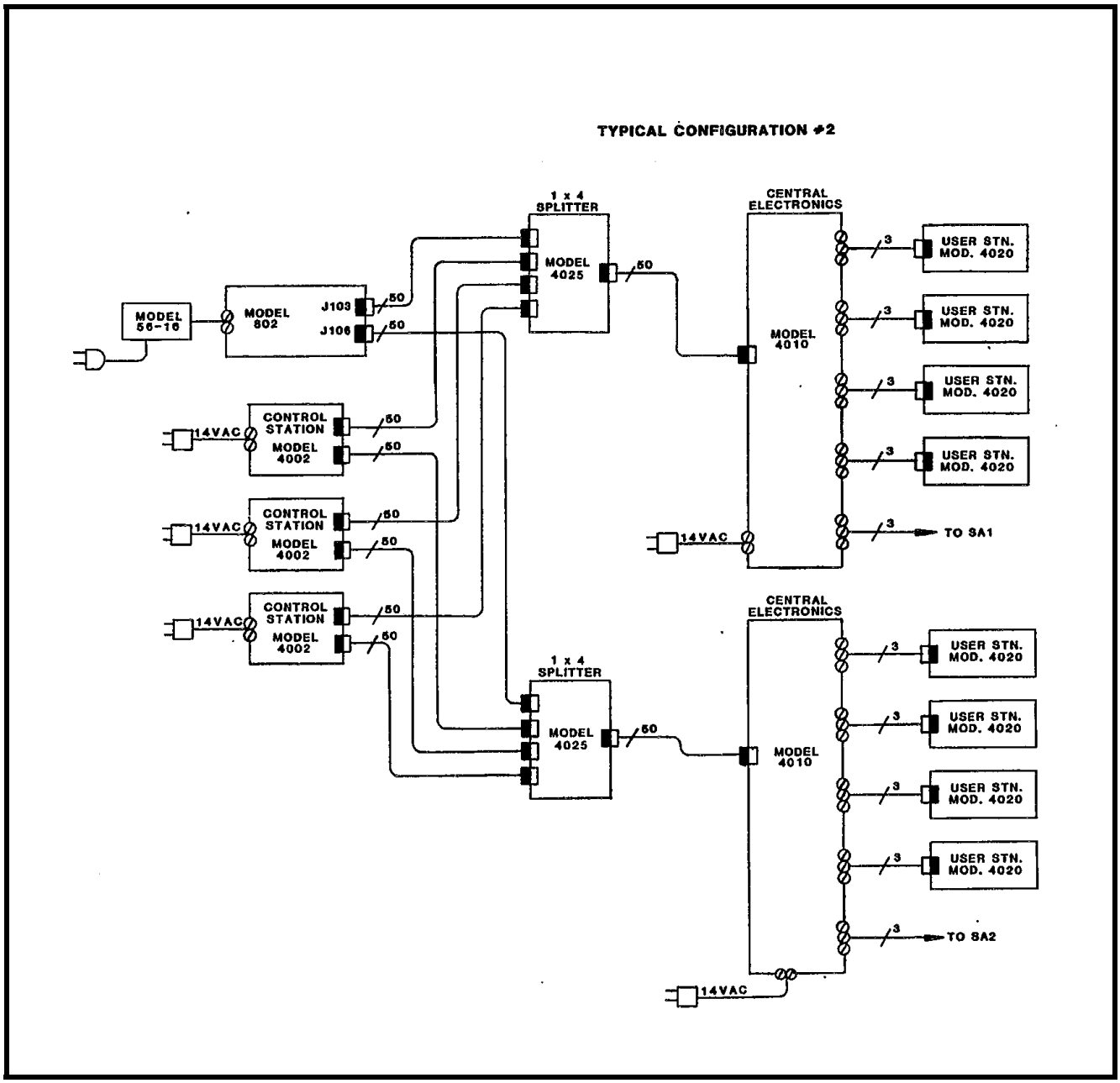


FIGURE 26. Method "B" Model 802 to IFB Connections (8 IFBs)

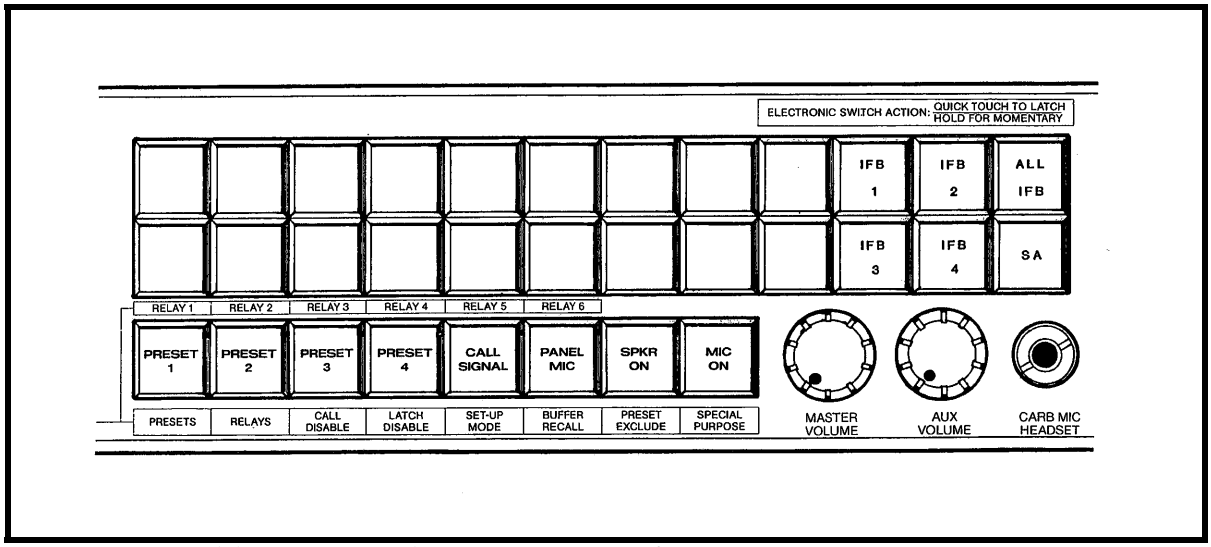


FIGURE 27. Model 802 Front Panel Button Arrangement for 4 IFBs

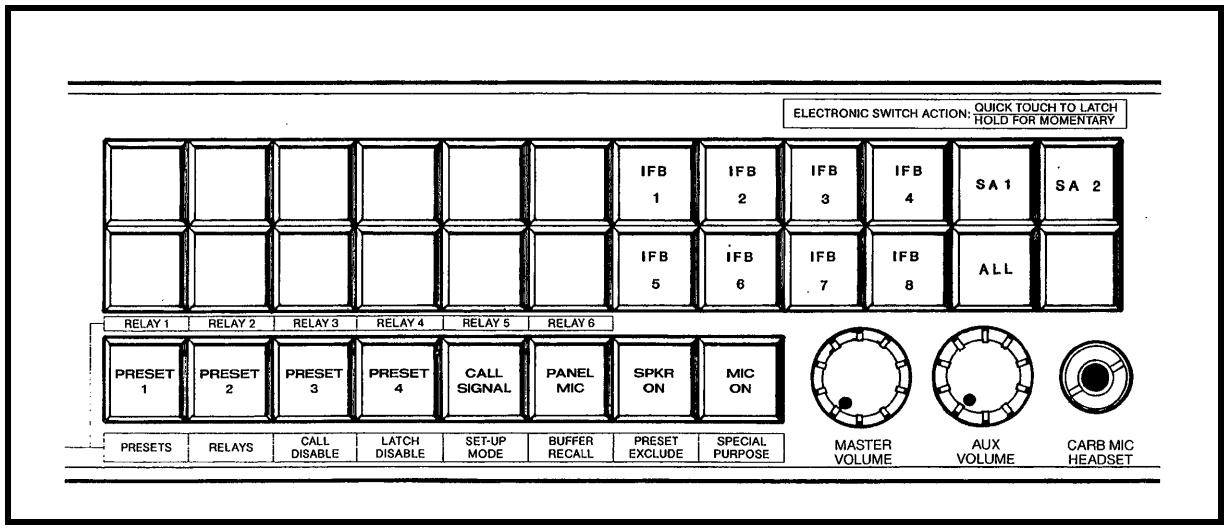


FIGURE 28. Model 802 Front Panel Button Arrangement for 8 IFBs

Series 1000 Squawk

The Model 802 may be used in either of two ways with the series 1000 squawk system. Method “A” requires an external model MCP-1010 squawk station that is connected to use the microphone and speaker in the 802. Method “B” emulates a model MCP-1010 squawk station with no external parts required.

For Method “A” squawk, connect MIC OUTPUT 1 or MIC OUTPUT 2 of the 802 to the EXTERNAL LINE LEVEL MICROPHONE INPUT of the MCP-1010 as shown in Figure 31 on page 35. Connect the MCP-1010’s OUTPUT TO CONFERENCE LINE to the SQUAWK input at TB8 on the 802.

Incoming audio level from the MCP-1010 is controlled by the SQUAWK level adjust on the 802’s pull-out adjustment board only and is not affected by 802 or MCP-1010 front-panel level control or 802/MCP 1010 front panel speaker switch.

For Method “B” squawk, the SQUAWK option must be installed. Two squawk option are available. The first option OPT802-F1 will emulate only the first six channels of an MCP-1010. The second option OPT802-F5 adds on to the first option so that all ten channels on an MCP-1010 are emulated. Either option requires the OPT802-A1 option base (See figures 29, 30, and 32.)

Incoming audio level is controlled by the adjustment board squawk level pot only and is not affected by front panel VOLUME control.

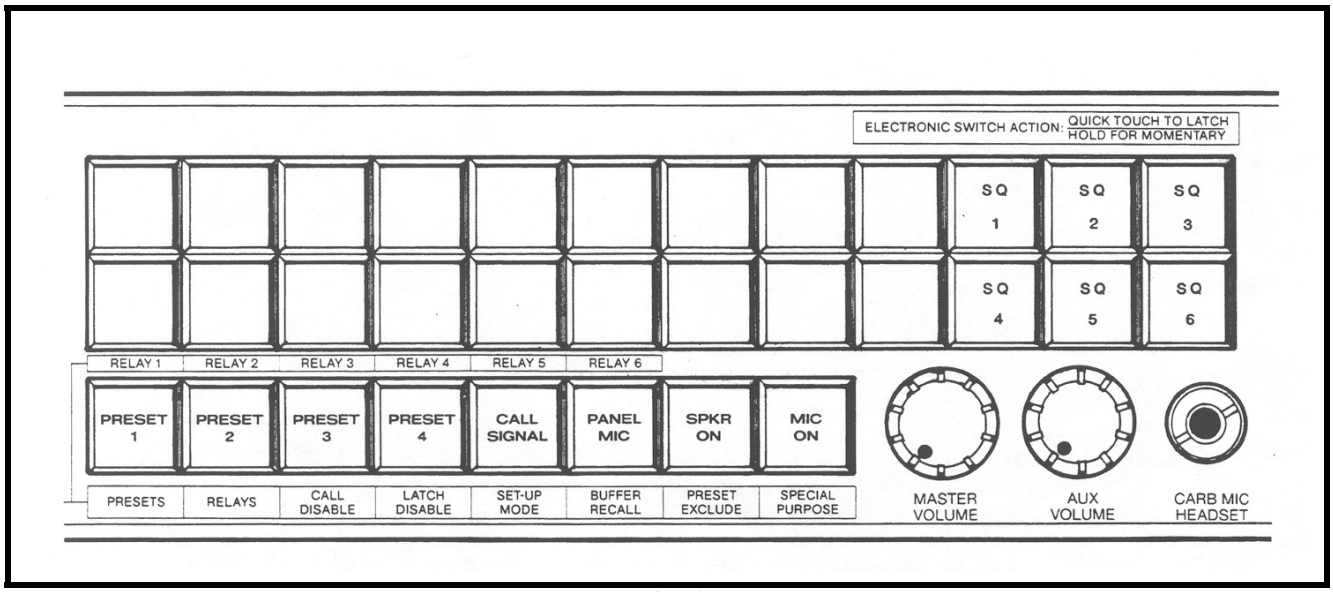


FIGURE 29. Model 802 Front Panel Button Arrangement for 6 Squawks

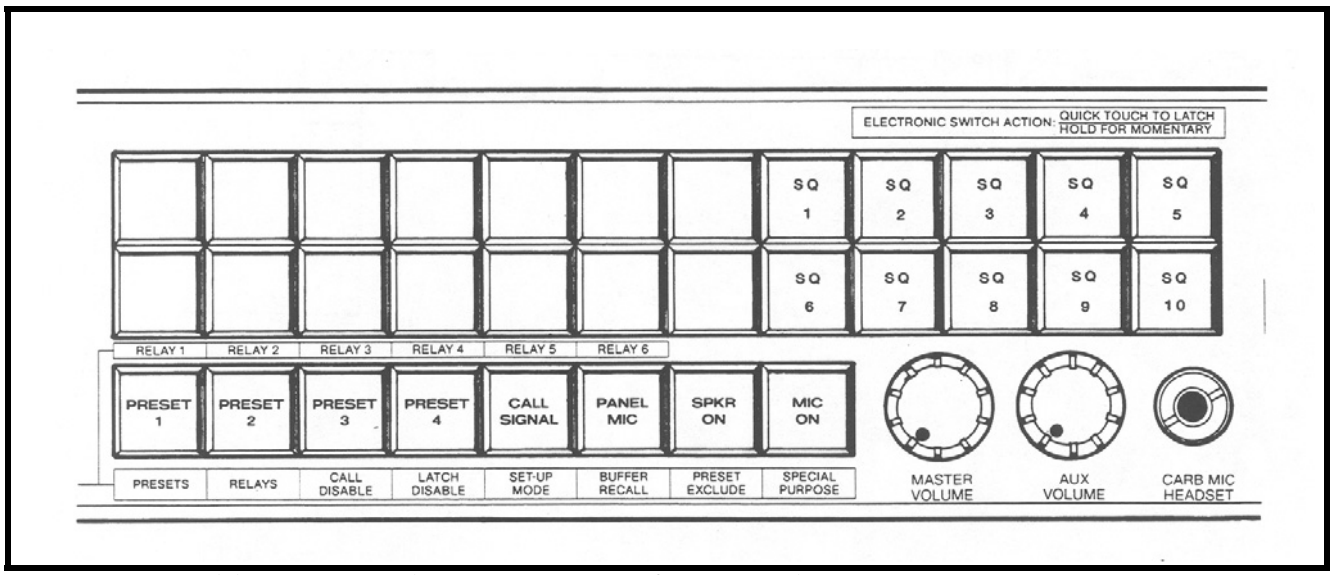


FIGURE 30. Model 802 Front Panel Button Arrangement for 10 Squawks

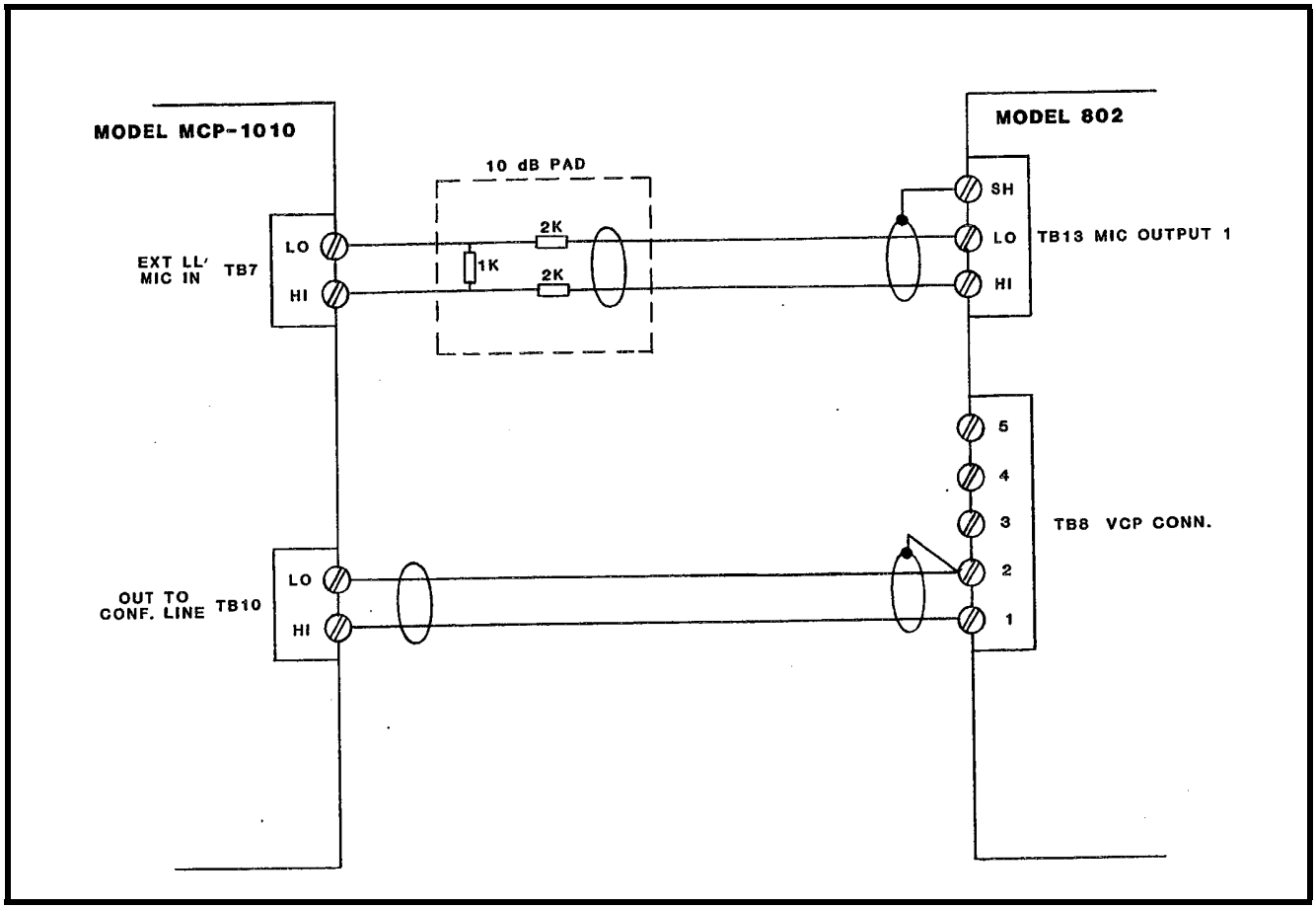


FIGURE 31. Method "A": Model 802 to Squawk Connection

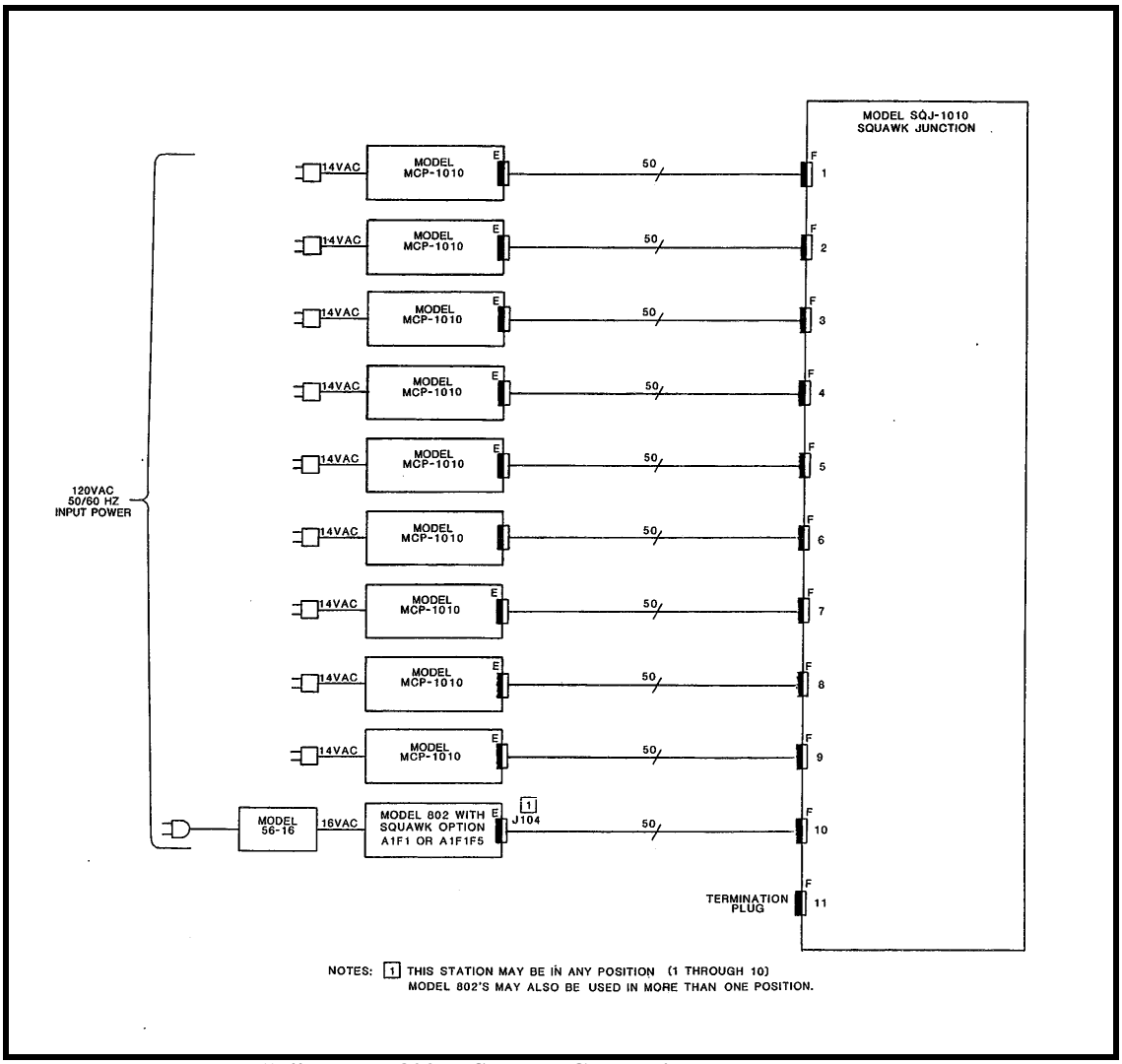


FIGURE 32. Method "B": Model 802 to Squawk Connection

Camera (Video) ISO

The Model 802 may be used in either of two way with the VIE-306 video iso electronics. Method "A" requires a model VCP-6 or VCP-12 video iso control panel. Method "B" will emulate a model VCP-6 video control panel stations and requires no external parts.

Method "A" video iso requires an external VCP-6 or VCP-12 video control panel. Co0nnnect the video control panel to the 802 rear panel VCP CONN terminal block as shown in Figure 34 on page 38.

Method "B" video iso will emulate a model VCP-6. To use this option, ISO option OPT802-H1 must be installed also with option base OPT802-A1. Enable ISO option "B" by moving switch S125-4 on the mother board to ON (See Figure 35 on page 39)and pushing the RESET button on the adjustment board. Connect output from rear-panel ISO connector J106 to the VIE-306 central electronics as shown in Figure 36 on page 39.

With either ISO option "A" or "B", ISO DRIVEN LISTEN DISABLE may be enabled. This option will mute all incoming party line calls when an ISO channel is selected. To enable this option, move switch S125-5 on the mother board to ON as shown in Figure 35 on page 39. In either case, outgoing party-line channels are disabled during video iso.

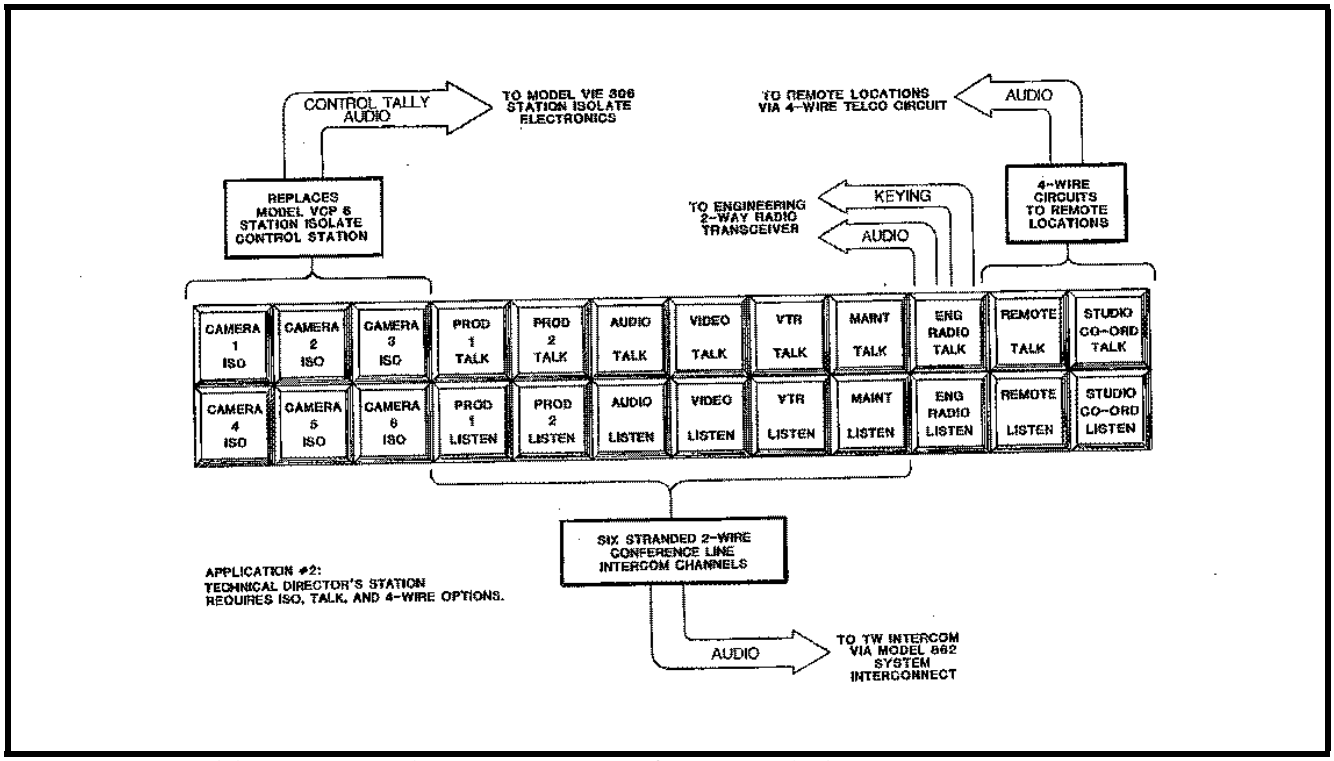


FIGURE 33. Model 802 Front Panel Button Arrangement for ISO (Method "B)

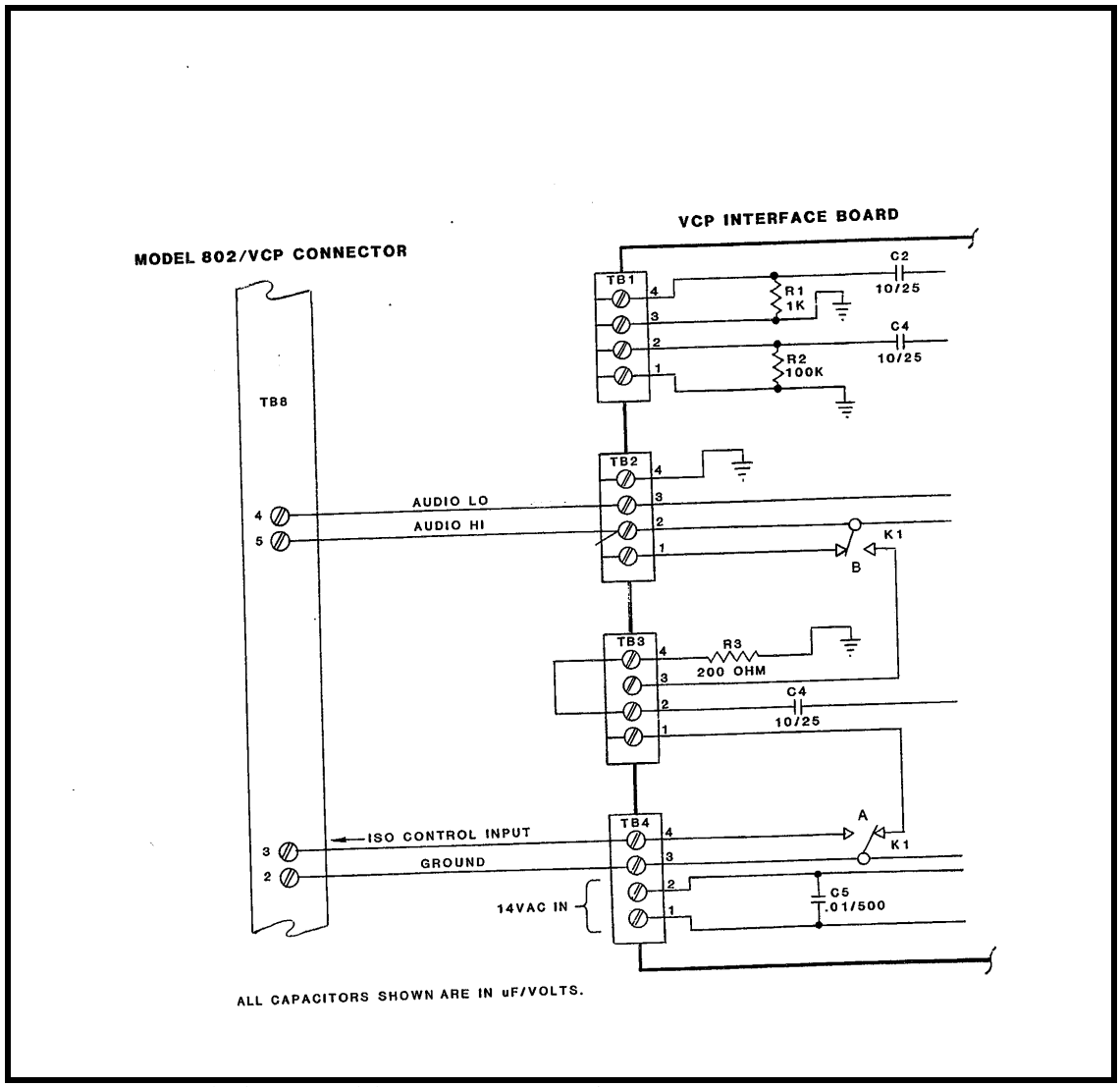


FIGURE 34. Method "A": Model 802 to ISO Connection

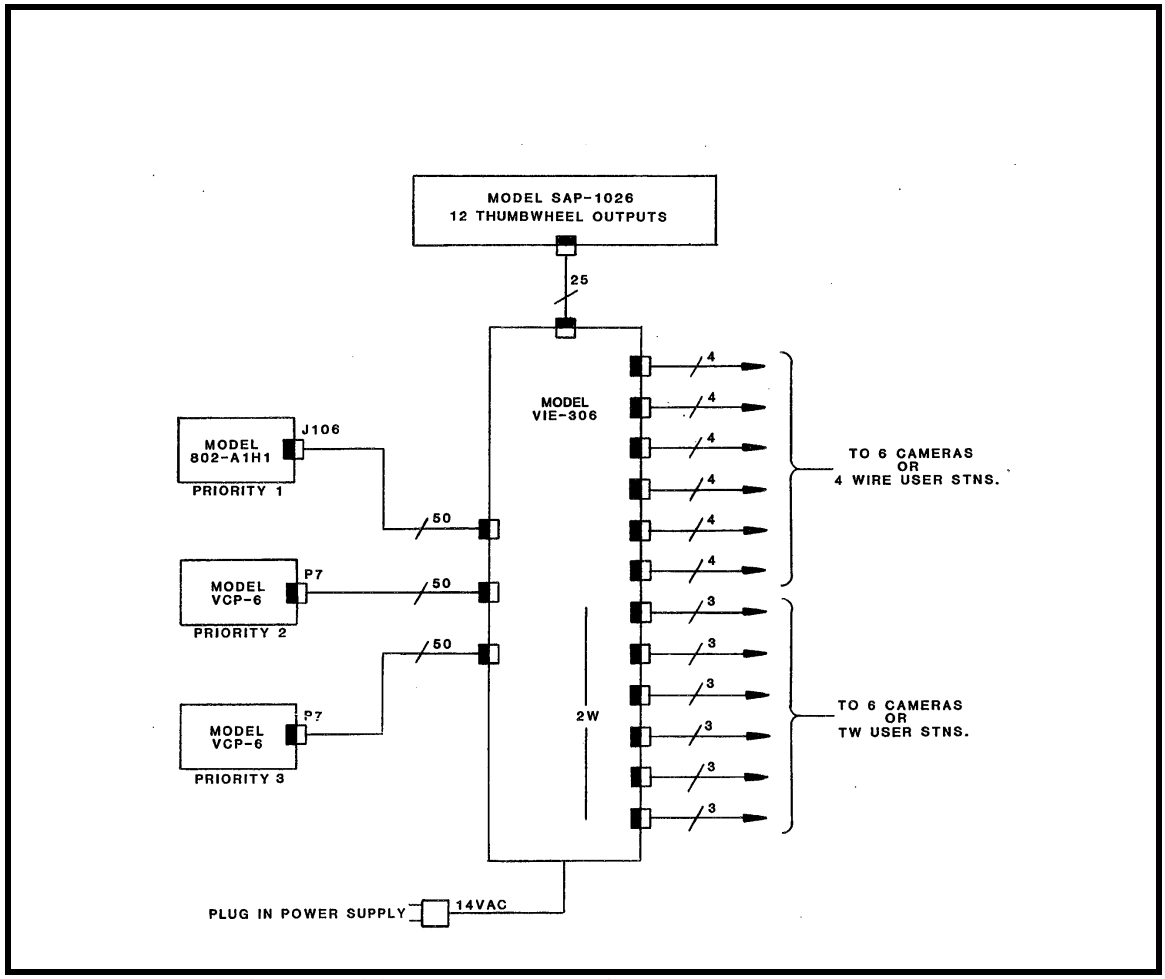


FIGURE 35. Method "B": Model 802 to ISO Connection

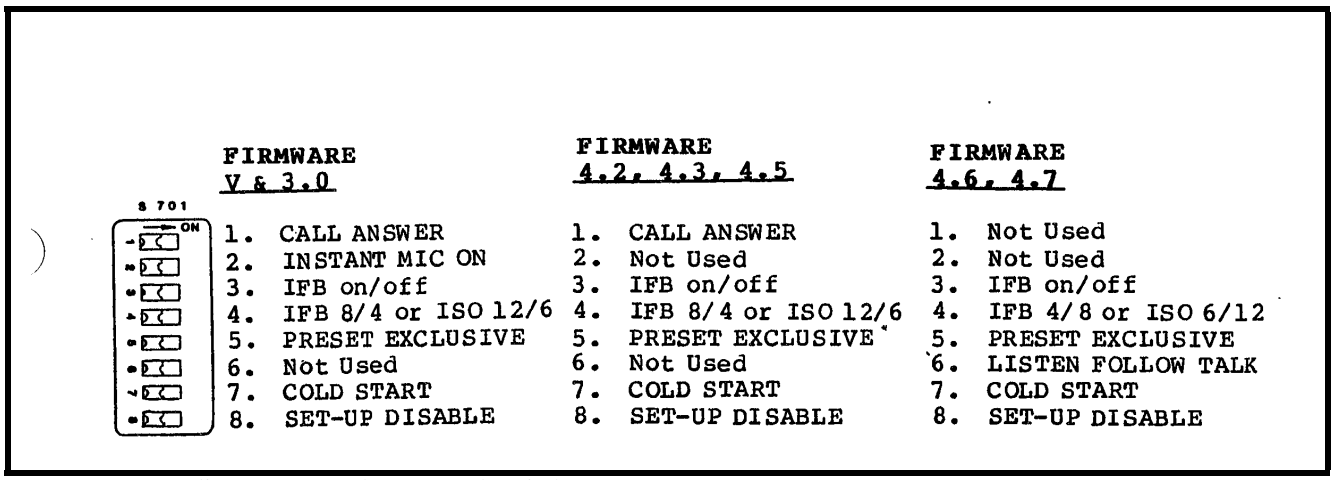


FIGURE 36. Adjustment Board Command Switch

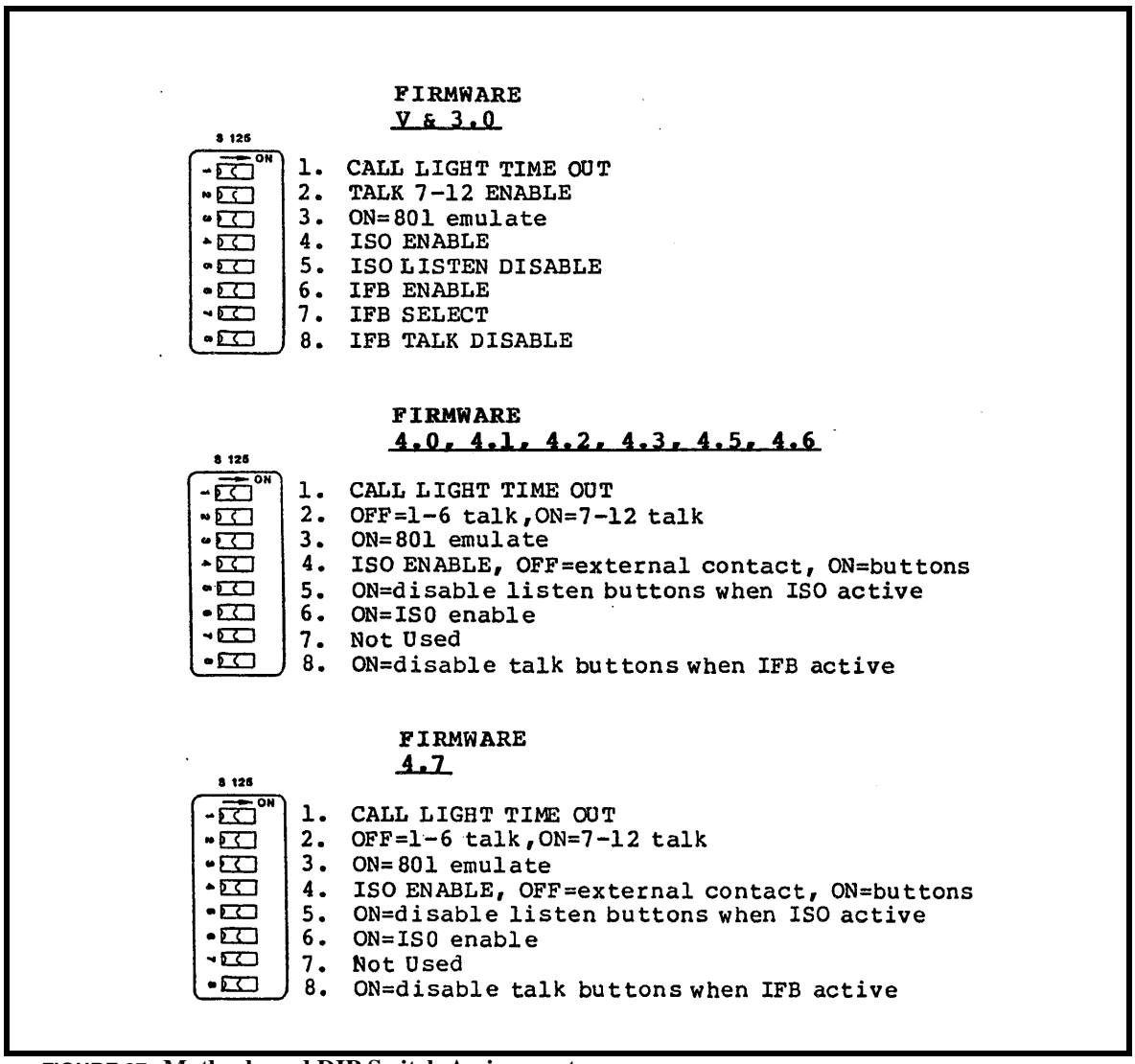


FIGURE 37. Motherboard DIP Switch Assignments

CHAPTER 3

Programming the Model 802

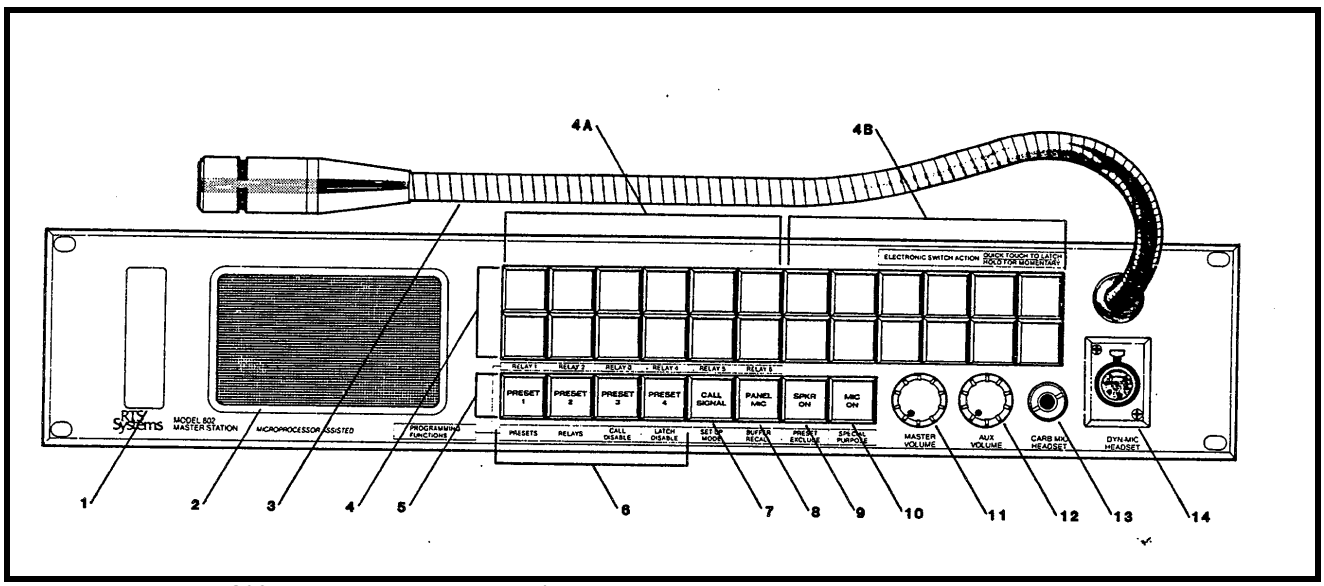


FIGURE 38. Model 802 Front Panel Programming Buttons

Introduction

There are two kinds of programming functions on the Mode 802: Hardware and Software. The hardware programming is accomplished via “dip switches” and by plugging in option boards. The software programming is accomplished via the front panel buttons.

Hardware Functions

The hardware “dip switches” are located on:

the motherboard
the adjustment board at the very back.

The Talk/Squawk Option board

The option boards that effect programming are:

The Talk/Squawk Option board(s)
The Signaling Option board(s)....(Also called the “Call Light” Option boards)

Plugging in the Talk/Squawk Option board and setting the dip switches on it and the motherboard for “Squawk” functions caused the Model 802 to operate in the “Squawk” Mode.

Plugging in the Signaling (Call Light) Option board activates the Signaling Option.

DIP Switches.

The adjustment DIP switch assembly has an eight function programming capability. See Figure 36 on page 39 for illustration.

The motherboard dip switch assembly has an eight function programming capability. See Figure 37 on page 40 for the present function assignments.

NOTE: See Addendum for the Software Functions

Set-Up Mode

To program the Front Panel functions, you must first enter the SET-UP mode. The SET-UP mode is entered by holding the CALL SIGNAL BUTTON (7) for about three seconds. When the SET-UP mode is entered, the microprocessor first stores the existing front panel settings in a temporary “buffer” memory, then clears the front panel. The SET-UP mode is indicated by the SET-UP MODE (CALL SIGNAL) button being steadily illuminated, and this is the only mode in which this button remains steadily illuminated. After entering the SET-UP MODE, the “valid” selection buttons will flash to allow you to select the function that you want to program. Only buttons applicable to the standard function and installed options will flash. In general, during the SET-UP process, the microprocessor indicated via flashing or winking buttons, the step-by-step procedure to follow.

If, after entering the SET-UP mode, no button is pressed within 13 seconds, the Model 802 will exit or leave the SET-UP mode and return to normal operation. If, however, a selection is made, the unit will remain in SET-UP mode until intentionally exited. In addition, the selected function button will illuminate steadily, indicating what is being programmed, until programming has been completed and stored in memory. After selection, the buttons which are valid selections within the particular programming mode will “wink” (“wink” here, means the lamp brightens or dims quickly, rather than “flashing” half on/ half off). The microprocessor accepts commands only from valid buttons.

PRESET Programming Function

The PRESET programming function enables any one or combination of the circuits controlled by the twenty-four selection buttons (4) to be assigned to, and be activated by, one or more of the four PRESET buttons (6). A simple example would be assigning all of the TALK circuits to PRESET #4, making PRESET #4 an “ALL TALK” button.

To program an “ALL TALK” button using the PRESETS programming function:

1. Enter the “SET_UP MODE”.

2. Choose PRESET by pushing the PRESETS (PRESET 1) button.
3. Choose PRESET 4 by pushing PRESET 4.
4. Select all talk by pushing each of the six (or 12 talk buttons (4A),B).
5. Push PRESET again to store that setting in the PRESET 4 memory and continue programming; or push the SET-UP MODE (CALL SIGNAL) button to store the setting in memory, exit the SET-UP MODE, and return to normal operation.

A preset is activated, or "called-up", from memory, by pushing the appropriate PRESET button (in either a momentary or latching mode). Prior to activating the circuits specified by the preset memory, the microprocessor first stores the existing button settings in its temporary buffer memory, then, when the preset is released, the microprocessor restores the previous button settings.

RELAYS Programming Function

The RELAYS function enables any of the six programmable relays to be assigned to- and be activated by- any one or combination of the twenty-four selection buttons (4) and/or the SPEAKER ON (9) and MICROPHONE ON (10) buttons. These relay contacts are accessible on the rear panel and can be used for any audio or low-current control switching requirements. An example might be assigning a relay to turn OFF a monitor loudspeaker in a control room.

To program a button to activate a relay, do the following:

1. Enter the "SET-UP MODE".
2. Choose RELAYS by pushing the RELAY (PRESET 2) button.
3. Choose which of six relays you are programming by pushing RELAY 1 through RELAY 6 (LISTEN buttons for channels 1 through 6 respectively.).
4. Push the buttons that will activate the chosen relay.
5. Push RELAYS (PRESET 2) to store the setting and do further programming, or push the SET-UP MODE (CALL SIGNAL) button to store the setting in memory, exit SET-UP MODE and return to normal operation.

CALL LIGHTS Programming Function

The CALL DISABLE (call signal receive disable) programming function is only enabled if the Model 802 is equipped with a Call Signal option. In a multiple Master Station system, all 802's may not want to receive incoming CALL signals from all channels. Individual 802s may be selectively programmed to accept CALL signals only from specific channels. For example, in a television studio, the audio booth's 802 would be programmed to accept signals on the Audio channel only while other 802s would be programmed to reject any signals on the Audio channel. Only the receive function is programmable. The "send" or outgoing signal is always enable on all channels equipped with the Signal option.

To program the CALL DISABLE programming function to a button or buttons:

1. Enter the "SET-UP MODE".
2. Push the CALL DISABLE (PRESET 3) button,
3. Push one or more button that you wish to disable the CALL function.
4. Push the CALL DISABLE (PRESET 3) button again to store the setting and to do further programming, or push the SET-UP MODE (CALL SIGNAL) button to exit SET-UP MODE.

LATCH DISABLE Programming Function

The LATCH DISABLE programming function allows the latching action of any dual-action button to be disabled. This means a button can be programmed to function as a momentary action button only. A logical application would be when a TALK button is programmed to key a two-way radio transmitter. In this application, when the transmitter should not be keyed continuously on, disabling the latch action allows momentary keying only.

To program the LATCH DISABLE programming function to a button, do the following:

1. Enter the "SET-UP MODE".
2. Push the LATCH DISABLE (PRESET 4) button.
3. Push one or more buttons that you wish to disable the latch function.
4. Push the LATCH DISABLE (PRESET 4) button again to store the setting and do further programming, or push the SET-UP MODE (CALL SIGNAL) button to store the setting(s), exit SET-UP MODE and return to normal operation.

PRESET EXCLUDE Programming Function

The PRESET EXCLUDE programming function allows one or more of the twenty-four selection button to be excluded from the PRESET function. This means that the excluded button cannot be programmed to be part of a preset. As such, it will not longer be considered a valid button during PRESET programming, and it will not change state when a preset is selected. The PRESET EXCLUDE function, therefore, may be used to avoid turning OFF an important circuit by activation of a preset.

To program a button using the PRESET EXCLUDE programming function, do the following:

1. Enter the "SET-UP MODE".
2. Push the PRESET EXCLUDE (SPEAKER ON) button.
3. Push one or more buttons that you wish to exclude from being preset.
4. Push the PRESET EXCLUDE button again to store that setting and do further programming, or push the SET-UP MODE (CALL SIGNAL) button to store the setting, exit SET-UP MODE and return to normal operation.

INSTANT MIC ON ASSIGN Programming Function

The INSTANT MIC ON ASSIGN function allows a Talk button to automatically key the Microphone ON/OFF Switch. For example, a Talk button and its associated channel could be made into a Page or Stage Announce function. The default states for the INSTANT MIC ON ASSIGN are as follows: The regular 12 channels of intercom Talk buttons are **not** INSTANT MIC ON; the IFB, Squawk and ISO functions **are** normally INSTANT MIC ON.

To program the INSTANT MIC ON (or not ON) function to a button, do the following:

1. Enter the "SET-UP MODE".
2. Push the SPECIAL FUNCTION (MIC ON) button.
3. Of the buttons now flashing, push the button at Row 1, Column 2.
4. Push one or more buttons that you wish to enable or disable.
5. Push the SPECIAL FUNCTION button again to store the setting and do further programming, or push the SET-UP MODE (CALL SIGNAL) button to store the setting(s), exit SET-UP MODE and return to normal operation.

APPENDIX A

802 Update for Compatibility with Models VCP-6A1 and VCP-12A

Date of Update: 10/25/84

The update from the VCP-6/VCP-12 options to the VCP/6A/VCP-12A 802 ISO options consists of the addition of a "Global Reset" function. This global reset function appears on the 802 Front Panel button normally used as Preset 4 (802 units with the update VCP-6A/VCP-12A ISO options have only 3 preset buttons available). When the global reset button is pushed, all ISO buttons on any 802s, VCP-6As, and/or VCP-12As in the system will reset. 802 units, with ISO options, which have not bee updated to include global reset will still work with a VCP-6A/VCP-12A system, but the 802 will not be able to generate or receive the global reset command.

If an 802 unit, with any ISO options (H0, H1, H5), does not appear to have the global reset function, remove the bottom cover and check the revision letter on the mother board (AW3000-1). 802 units with mother boards having revision letters of "G" or less have not been updated.

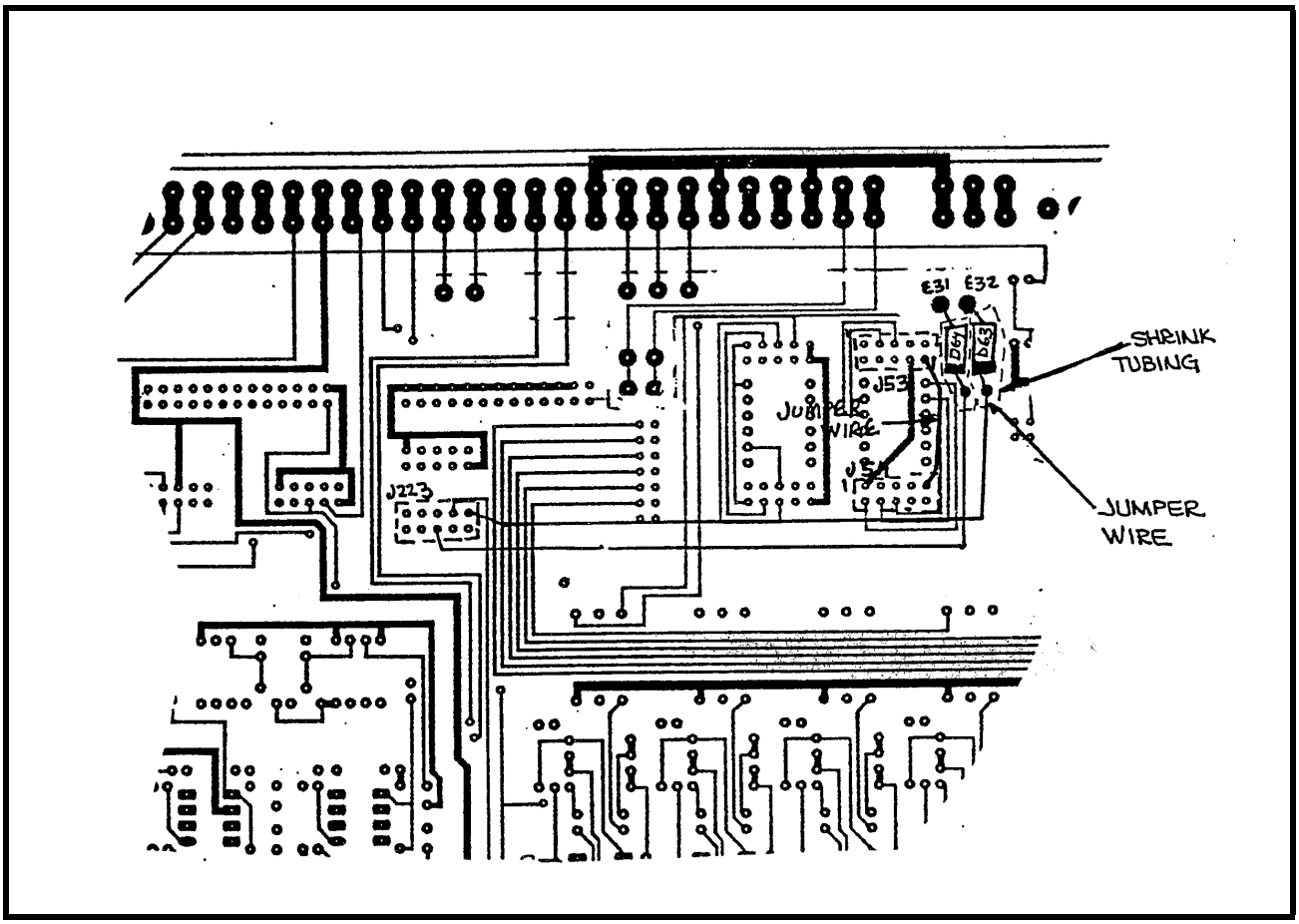
To update the 802 unit, with an ISO option, for global reset, do the following:

1. add the following to the circuit (bottom) side of the mother board (refer to next page).
    - Add D64 (Diode, International Rectifier #11DQ03, RTS #1601-0001-00) between J53 pin 9 (Anode) and J223 pin 6 (cathode).
    - Add D63 (Diode, International Rectifier #11DQ03, RTS #1601-0001-00) between J53 pin 9 (Anode) and J223 pin 6 (cathode).
    - Add a jumper wire between J53 pin 10 and J54 pin 9.
2. In units shipped prior to 10/29/84 only, install new firmware (V4.2 and up) in the memory prom positions u12, U13, and U14 of the CPU board (AW3000-5). The CPU board can be accessed by removing the 802 top cover.

NOTES

1. Solder jumper wires to the cathode leads of both D63 and D64. Insulate each diode, and its jumper wire solder connection, with shrink tubing.

2. Jumper wires should be #24 or #22 AWG.



DETAIL: VCP-6A updates to the 802 Mother Board, AW 3000-1 (Circuit side shown)

Appendix B

Model 802 Special Purpose Programming Mode Functions

Special Purpose Programming Mode

The SPECIAL PURPOSE Programming Mode allows the user to choose additional operating features. These features are described within this chapter. The description includes instructions for the user to implement the features.

Button Lock

Button Lock (formerly Button Inhibit) is used to lock buttons ON or OFF.

To Lock ON, do the following - First clear display, then select button(s) you want locked ON. Go into SET UP MODE, select SPECIAL PURPOSE, then BUTTON LOCK. Reselect the same buttons you want locked ON. After you clear from SET UP MODE these buttons will stay ON and cannot be turned OFF or programmed for any other function except keying relays. You cannot lock ON PRESETs.

To Lock OFF, do the following - Clear display and go into SET UP MODE. Select SPECIAL PURPOSE, then BUTTON LOCK. Select button(s) you want locked OFF. Clear from SET UP MODE and the selected switches cannot be turned ON. If you'd like to lock OFF some buttons but have a PRESET turn them ON, program the PRESET first and then the BUTTON LOCK.

Instant Mic

INSTANT MIC Activates MIC ON with any usable TALK button. Standard units can only use TALK 1 through TALK 6. Units with B3 option (TALK Channels 7 through 12) can use TALK 1 through TALK 12.

Bilat[1] Select

BILAT SELECT can turn ON a normally unused bilate with a button on the front panel. Go into SET UP MODE, select SPECIAL PURPOSE, then BILAT SELECT. Buttons will flash the available bilats, refer to Appendix X for more information on the software summary. Now, assign a button to control that bilat.

Total Mute

TOTAL MUTE is used to turn OFF all other button keyed ON with the touch of one button on the front panel. Only one button can be programmed for this function and when programmed cannot be used for any other purpose.

1. *Bilat means bilateral current source used as a two- to four-wire converter (RTS Systems patent number 4,358,644: "BILATERAL CURRENT SOURCE FOR A MULTITERMINAL INTERCOM").*

NOTE: CHIME SELECT, AUTO LISTEN, and AUTO TALK are used with the CALL Options only.

Chime Select

CHIME SELECT is used with Chime Options, E1, only. You have a choice of several chime tones which are Dissonant Tone, Bell Tone, Sweep Tone, and no tone. Only one tone can be used at a time. Normally, the 802 uses the Bell Tone which sounds after the software version is shown on the 802 front panel after “power up” or RESET.

To change the chime tone, go into SET UP MODE. Select SPECIAL PURPOSE, then CHIME SELECT. Select desired chime tone whose button locations are shown in Appendix X. Push CALL SIGNAL button to hear that tone. you’ll now be out of the SET UP MODE because the CALL SIGNAL button doubles as the SET UP button.

To turn OFF the chime tones, go into SET UP MODE, select SPECIAL PURPOSE and then CHIME SELECT. The available chime tone buttons will flash, one being out of phase with the others, push that button so all the buttons flash together.

NOTE: If the selected Chime is too loud or too soft, pull out the adjustment board and adjust the “Chime Level” pot.

Auto Listen

AUTO LISTEN functions as follows, when a person at a location remote to a given 802 pushes his CALL transmit button, a call signal is received at the 802. The channel receiving the call signal will key ON that channel’s LISTEN button which will remain ON as long as the person at the remote location holds down their CALL transmit button. This allows the caller to vocally announce their call as well as send the call signal.

Auto Talk

AUTO TALK functions the same as AUTO LISTEN except both the TALK and MIC ON buttons will be keyed ON instead of the LISTEN buttons. This allows the 802 operator to talk back to the person at a remote location without touching any buttons.

Ext. Contact

The EXTERNAL CONTACT formerly operated only the MIC ON switch. The EXTERNAL CONTACT is now programmable with the default state operating the MIC ON switch (which means that the MIC ON will not be keyed ON when this program is used.). Programming the EXTERNAL CONTACT allows the EXTERNAL MIC switch contacts (TB7) located on the 802 rear panel, to be used to key ON a 802 front panel button. Only one button can be programmed for this function. You can, however, program a PRESET to turn ON a group of buttons. To do that, program your PRESET first, then program the EXT. CONTACT to turn ON that PRESET. To turn ON the MIC ON as well, see the INSTSANT MIC programming feature, above.

Talk Turns On Listen

TALK TURNS ON LISTEN functions as whenever a particular TALK channel button is pushed ON, the TALK’s corresponding LISTEN button will be automatically keyed ON. The LISTEN button will stay ON until the 802 operator pushes it OFF or the TALK button is pushed OFF.

Talk Turns Off Listen

TALK TURNS OFF LISTEN functions as whenever a particular TALK channel button is pushed ON, the TALK’s corresponding LISTEN button, if ON, will be automatically keyed OFF. The LISTEN button will stay OFF until the operator pushed it ON or the TALK button is pushed OFF.

APPENDIX C

Addendum to Technical Data Package

The following criteria are established as requirements for the RS232 communications option for the RTS Systems Model 802.

1. Operate and interrogate all front panel buttons.
2. Inhibit operation of front panel buttons.
3. Determine Status of all DIP switches (byte wide).
4. Read and modify all programmable (RAM) memory.
5. Operate all relays, talk/listen gates, key lines independently of button positions.
6. Initiate a warm or cold start.
7. Always send out a code upon operator initiation of warm or cold start.
8. On command, send out a code upon operator initiation of any function, front panel or DIP switch change.
9. RS232 software should never cause the 802 to hang or lock up.
10. Host computer should have the ability to write and execute machine code in RAM for diagnostic or other purposes.

RS232 Language Implementation

For RS232 communications, the buttons are numbered from 1 to 48.

The physical front panel buttons on numbered 1 to 32. Certain connections to the rear panel are numbered 33 to 48.

CODE	DEFINITION
1-12	Top row of front panel buttons
13-24	Second row of front panel buttons
25-32	Function buttons, front panel, bottom row
33	External camera ISO input
34	External global reset tally
35	External mic
37-48	Call light inputs (from phase lock loops)

By treating the external contacts as if they were front panel buttons, the external host computer can turn them ON or OFF, inhibit the function completely (in either the ON or OFF position), assign a relay to the function, force a chime signal, et cetera.

Command Structure

All commands will be initiated by a letter, followed by a numeric modifier, followed by an operator, followed by a terminating carriage return. The command letter indicated the major functions such as BUTTON, KEY, RELAY, MEMORY, et cetera. The numeric modifier usually refers to which button, or relay or memory is associated with that particular command. The operator tells the 802 whether to turn something on (+) or off (-) or to inquire about its present state (?).

Some commands have no modifiers or operators such as WARM START or COLD START or VERSION.

Command lines must be limited to 128 characters in length. (Only the load memory command has the capability of exceeding this limit.)

Error Handling

The 802 cannot stop when it encounters a confusing a command it will simply ignore the entire command. Specific errors include a command letter not in its command table, a numeric modifier that is out of range (for example, relay 12), an unrecognizable operator, et cetera. Upon detection of an error, the interpreter was confused:

CODE	DEFINITION
E00	Syntax Error
E01	Output Buffer Overflow
E03	Unrecognizable command modifier (+, -, or? expected).
E04	Number out of range (for example, illegal button number)
E10	RS232 framing or parity error
E20	RS422 framing or parity error

Examples of Commands and Responses

The following examples of host computer commands use button 12, relay 5, address 0100 (hex) as examples.

FUNCTION	HOST COMMAND	802 RESPONSE
Turn Button ON:	B12+	NONE
Turn Button OFF:	B12-	NONE
Test Button Status:	B12?	+ or -
Inhibit Button's Use By Operator (function may be ON or OFF):	I12+	NONE
Allow Button's User by Operator:	I12-	NONE
Test If Inhibited:	I12?	+ or -
Assign Relay To Button	B12R5+	NONE
Remove Relay Assignment	B12R5-	NONE
Test Which Relays Assigned to Which Button	B12R5?	+ or -
Turn ON Relay	R5+	NONE
Turn OFF Relay	R5-	NONE
Test Relay Status	R5?	+ or -
Turn ON a Gate	G12+	NONE
Turn OFF a Gate	G12-	NONE
Test Gate Status	G12?	+ or -
Turn ON Key	K12+	NONE
Turn OFF Key	K12-	NONE
Test Key Status	K12?	+ or -
Load Memory	M0100, 04, 0D	NONE
Dump Memory	D0100	0100: 04 0D 0A 00
Dump Additional Memory	D	0110: BC 9A 88 C3
Enter Setup Mode	S+	NONE
Exit Setup Mode	S-	NONE
Execute at Address	X0100	NONE

Eavesdrop Mode

The Eavesdrop Mode sends to the host computer an indication of whether the operator has turned a function ON or OFF. It reflects the status of the panel light under the button.

FUNCTION	HOST COMMAND	802 RESPONSE
Turn Eavesdropping Mode ON:	E+	None until a button pushed by the operator turns a function on (B12+) or off (B12-). B12- (if 12 turned off).
Turn Eavesdropping Mode OFF:	E-	NONE
Test Eavesdrop Mode:	E?	+ or -
Warm Start	C	C
Version Number	V	RTS021284

Possible problems with relay command: The relays are updated every time a button is pushed or released. This means that if the host computer turns on a relay, it may be turned off the next time the operator pushes any button.

Keys and gates have a similar problem, but will only be affected if the operator pushed the button associated with that particular key or gate.

802 Software Update

The 802A unit is an updated edition of the 802 unit with a new CPU board installed; the new and improved 802A software version 5.2 has been released and is identical to version 5.1, with the exception of the software problems, which have been corrected.

The 802A software version 5.1 is identical to version 4.7, but with the following new features added:

1. New Z80 type CPU board increases memory in the EPROM for adding future special functions[2].
2. RS232 allows a computer terminal to run active functions on the 802A (front panel button controlled). See Addendum X for RS232 Operation.

NOTE: Due to the software problems in version 5.1, any 802A units that are returned to the factory for repair with software version 5.1 will be updated to version 5.2 at no extra charge to the customer. Customers with software version 5.1 are urged to contact Customer Service at RTS Systems (800-392-3497) to request the software update. This update is not applicable to customers with versions 4.7 and below.

SPECIAL NOTICE:

Customers with CALL SIGNAL and CHIME Options are most affected by the problems in version 5.1.

Customers without CALL SIGNAL and CHIME options are not seriously affected by the problems in version 5.1, but should update to version 5.2 to avoid any operational conflicts in the future.

2. *Updating to the new Z80 CPU is not covered under warranty, unless otherwise specified. Please contact your dealer or RTS Systems Customer Service for further details.*

Appendix D

Summary of 802 Software Versions

Version 4.7

Added two features:

- (1) TALK key turns ON corresponding LISTEN key
- (2) TALK key turns OFF corresponding LISTEN key

Version 4.6

Added features:

- Choice of 6 or 10 squawks
- Allows assigning of unused bilats to buttons
- Displays version number of software during power-on
- Ability to program a total mute button
- Programmable auto-listen ON when receiving a call
- Auto-Call now programmable on individual buttons
- Choice of 3 chime tones
- External (rear panel) mic contact can be programmed to any button
- Exclusive talk/listen feature:
  1 talk/listen pair at a time

NOTES on Version 4.6:

1. Versions 4.5/4.6 are the first to use four EPROM's, previous versions used three EPROMs
2. Bilat 13/14 talk/listen gates not lifted/saved, (For example: during ISO).

Version 4.5

Same as Version 4.6, but not released because of a bug: External ISO doesn't key ON the mic.

Version 4.4

This version never issued.

Version 4.3

Correct minor bugs in version 4.2.

Version 4.2

Added features:

- Added Global Reset button for VCP-6A and VCP-12A options
- Instant mic is now programmable to individual buttons

Version 4.1

Added features:

- Both ISO and IFB moved to right side of panel.
- Any button can be programmed to be ignored.

APPENDIX E

Documentation Summary Software

Version 4.6

Mother Board DIP Switch Assignments

1. Call light time-out selection
2. OFF=1-6 talks, ON=7-12 talks.
3. ON=801 emulation.
4. ISO select. OFF=external contact, ON=buttons.
5. ON=disable listen buttons when ISO active.
6. ON=ISO system enabled.
7. Not used.
8. ON=disable talk buttons when IFB active.

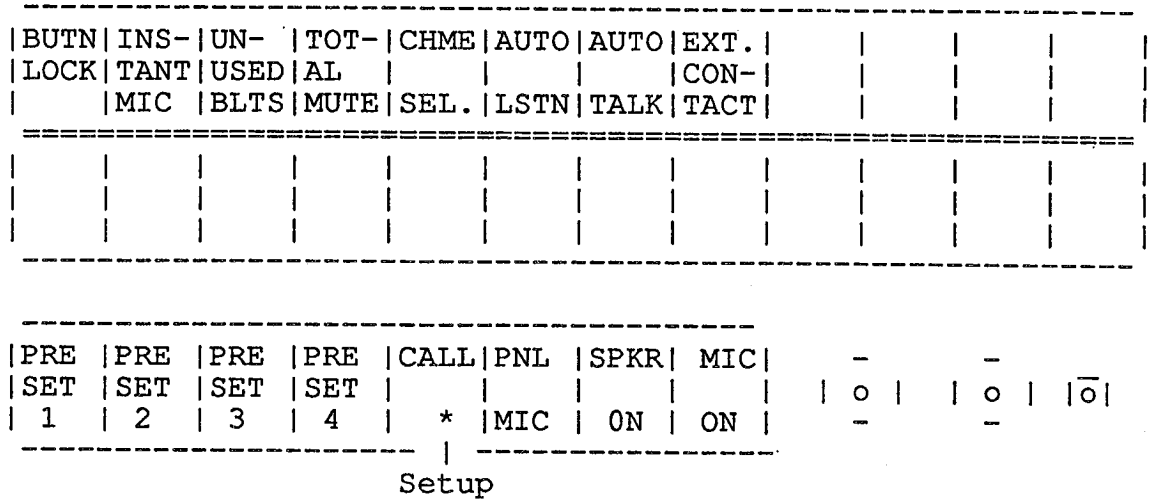
Adjustment Board DIP Switch Assignments

1. Not used (old auto-call).
2. Not used (old instant mic).
3. ON=IFB system enabled.
4. Number of IFBs or ISOs. OFF=6, ON-12.
5. Only one preset on at a time [INTERLOCKING SWITCH ACTION].
6. When talks active, only corresponding listens can be active.
7. ON=Always “cold start”.
8. ON=Disable setup mode.

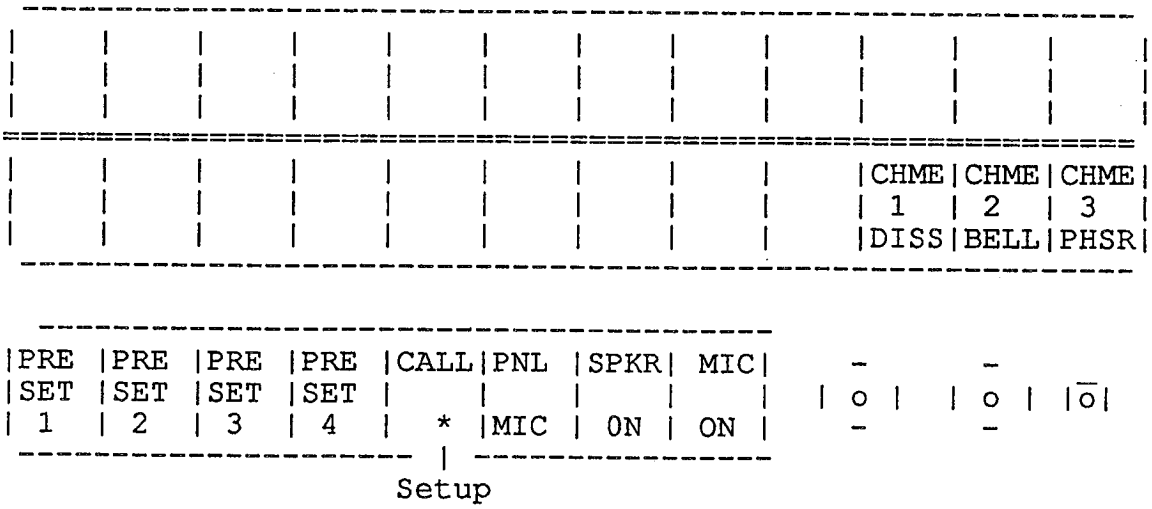
Squawk Board DIP Switch Assignments

1. OFF= up to 6 squawks, ON= up to 10 squawks.
2. ON=SQUAWK system enabled.
3. Adjusts which buttons have squawk.
4. Adjusts which buttons have squawk.
5. Saves talk when squawk used
6. Saves listen when squawk is used.

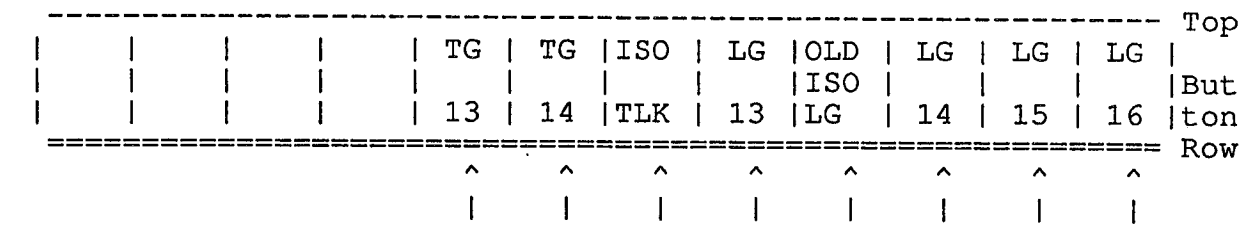
SPECIAL PURPOSE FUNCTIONS



CHIME SELECT

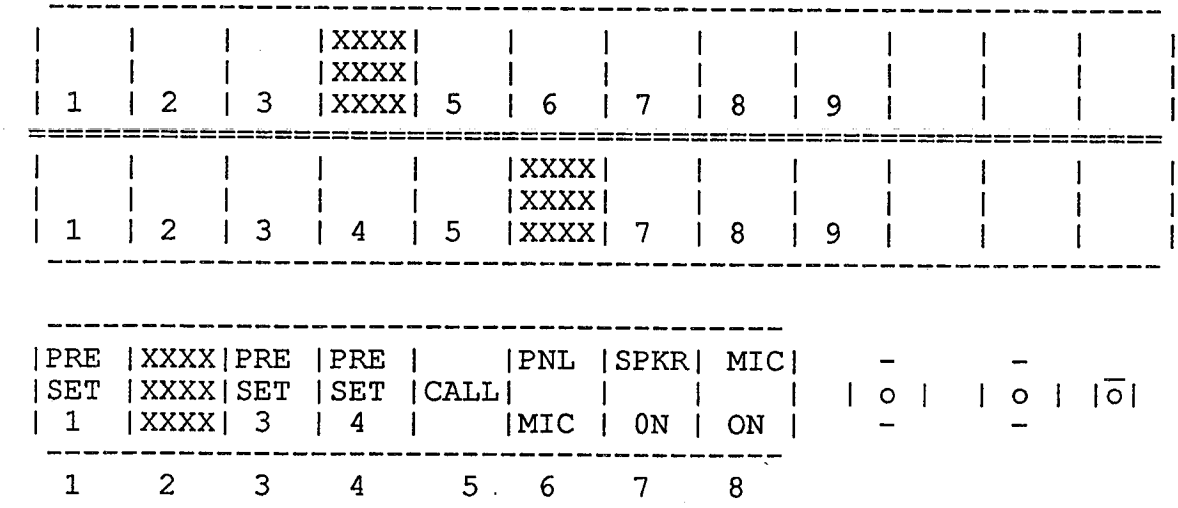


UNUSED BILATERAL CURRENT SOURCE SELECTION



Corresponding Circuit Points to top row Buttons.	PIO2 3 BIT0	PIO2 3 BIT1	PIO1 5 BIT6	PIO2 2 BIT4	PIO1 5 BIT7	PIO2 2 BIT5	PIO2 2 BIT6	PIO2 2 BIT7

VERSION INDENTIFICATION (VERSION 4.62 ILLUSTRATED)
(OCCURS ON POWER-UP)



Chime Choices

1. Dissonant tone (DISS).
2. Bell.
3. Sweep tone (PHaSoR)

Version 4.7

Mother Board DIP Assignments

1. Call light time-out selection
2. OFF=1-6 talks, ON=7-12 talks.
3. ON=801 emulation.
4. ISO select. OFF=external contact, ON=buttons.
5. ON=disable listen buttons when ISO active.
6. ON=ISO system enabled.
7. Not used.
8. ON=disable talk buttons when IFB active.

Adjustment Board DIP Switch Assignments

1. Not used (old auto-call).
2. Not used (old instant mic).
3. ON=IFB system enabled.
4. Number of IFBs or ISOs. OFF=6, ON-12.
5. Only one preset on at a time [INTERLOCKING SWITCH ACTION].
6. When talks active, only corresponding listens can be active.
7. ON=Always “cold start”.
8. ON=Disable setup mode.

Squawk Board DIP Switch Assignments

1. OFF= up to 6 squawks, ON= up to 10 squawks.
2. ON=SQUAWK system enabled.
3. Adjusts which buttons have squawk.
4. Adjusts which buttons have squawk.
5. Saves talk when squawk used
6. Saves listen when squawk is used.

Chime Choices

1. Dissonant tone (DISS).
2. Bell.
3. Sweep tone (PHaSoR)

UNUSED BILATERAL CURRENT SOURCE SELECTION

				TG 13	TG 14	ISO TLK	LG 13	OLD ISO LG	LG 14	LG 15	LG 16	Top Button Row
Corresponding Circuit Points to top row Buttons.				PIO2 3 BIT0	PIO2 3 BIT1	PIO1 5 BIT6	PIO2 2 BIT4	PIO1 5 BIT7	PIO2 2 BIT5	PIO2 2 BIT6	PIO2 2 BIT7	

VERSION INDENTIFICATION (VERSION 4.7 ILLUSTRATED)
(OCCURS ON POWER-UP)

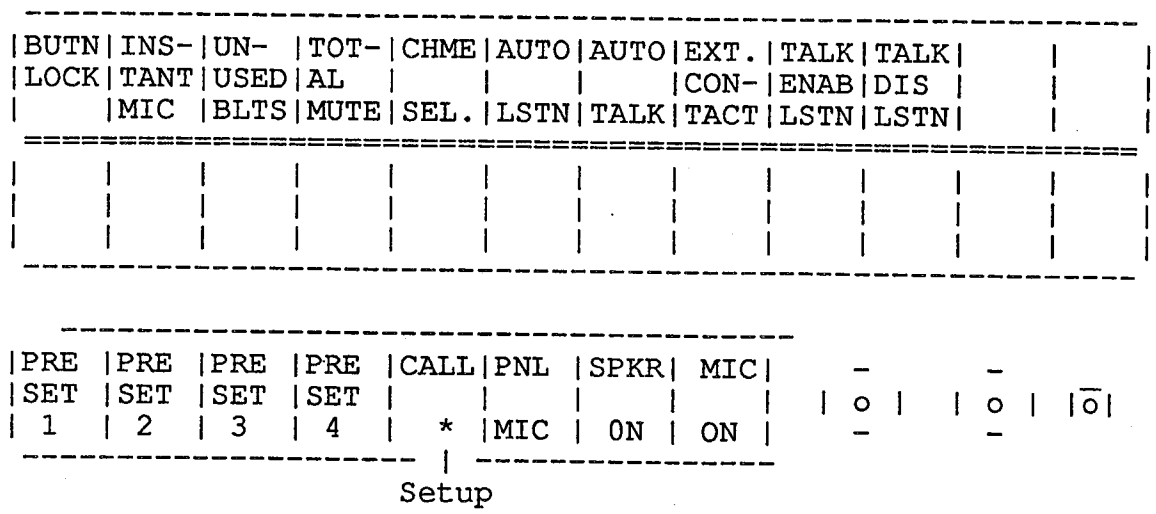
			XXXX XXXX XXXX								
1	2	3		5	6	7	8	9			

						XXXX XXXX XXXX					
1	2	3	4	5	6		8	9			

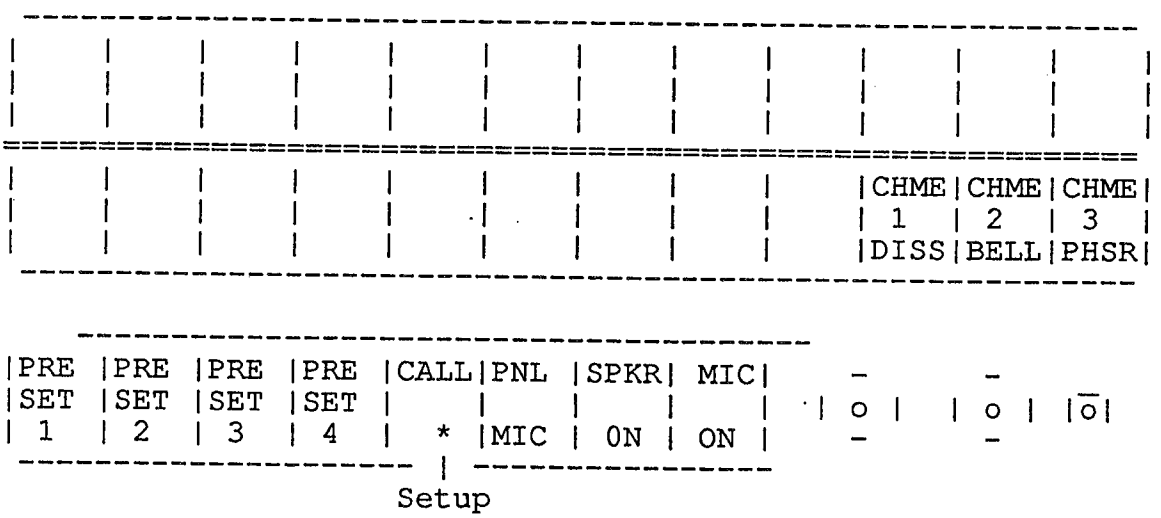
PRE SET 1	PRE SET 2	PRE SET 3	PRE SET 4	CALL	PNL MIC	SPKR ON	MIC ON	- o -	- o -	$\overline{o}$
1	2	3	4	5	6	7	8			

XXXX
XXXX <------ indicates a lit button.
XXXX

SPECIAL PURPOSE FUNCTIONS



CHIME SELECT



APPENDIX F

Option Numbering System and Ordering System

Each option for the 802 is listed as a separate model number (derived from the coding system below) which always starts with *OPT802-* followed by a suffix containing both a letter and a number. (i.e. OPT802-B).

The suffix letter designates what the option is:

A	Option Base	J	(future)	S	(future)
B	Talk	K	(future)	T	(future)
C	4-Wire	L	(future)	U	(future)
D	Signal	M	(future)	V	(future)
E	Chime	N	(future)	W	(future)
F	Squawk	O	Not to be used	X	(future)
G	IFB	P	(future)	Y	(future)
H	ISO	Q	Not to be used	Z	Custom
I	Not to be used	R	(future)		

The suffix number designates how the option is to be sold/installed:

0	not installed (sold for field installation or as a spare)
1	factory installed, no assignment required
2	factory installed, in channels 1-6
3	factory installed, in channels 7-12
4	
5	factory installed, as secondary (additional), option (i.e. upgrade to: ten squawk channels; IFB 4002)
6	not installed, as secondary (additional) option
7	
8	
9	special instructions required

The RTS Order acknowledgement ("OA") lists each individual option as a separate line item, normally, listed directly below the associated 802.

Ordering example:

Quantity	Model	Description
1	802	Master Station
1	OPT802-A1	Option Base, installed
1	OPT802-B3	Talk, installed
1	OPT802-C3	4-Wire, installed, ch 7-12
1	OPT802-E1	Chime, installed
1	OPT802-G1	IFB-4001, installed

OPTION NAME/NUMBER	DESCRIPTION
"Option Base": Required to support certain options (indicated below).	
NOTE: Only one "Options Base, is required per individual 802	
OPT802-A0	Option Base, not installed
OPT 802-A1	Option Base, installed
"Talk" Option: Adds circuitry to channels 7-12	
OPT802-B0	Talk, not installed
OPT802-B1	Talk, installed
"4-Wire" Option: Adds 4-Wire Capability to Six Channels	
OPT802-C0	4-Wire, not installed
OPT802-C1	4-Wire, installed, ch 1-6
OPT802-C2	4-Wire, installed ch 7-12
NOTE: Option C3 requires "Talk" Option B1	
"Signal" Option: Adds Call Signaling Capability to Six Channels	
OPT802-D0	Signal, not installed
OPT802-D2	Signal, installed ch 1-6
OPT802-D3	Signal, installed, ch 7-12
NOTE: Requires "Option Base" A1. And, Option D3 also requires "Talk" option B1	
"Chime" Option: Generates Audible Outgoing and Incoming Signal	
OPT802-E1	Chime, installed, factory only
NOTE: Requires "Signal" Option D2 or D3.	
"Squawk" Option: Provides Dedicated Line Intercom Capability (and Model 810 emulate)	
OPT802-F0	Squawk, not installed
OPT802-F1	Squawk, installed ch 1-6
OPT802-F5	Squawk, installed ch 7-12
NOTE: Requires "Option Base". And Option F5 also requires Option F1	

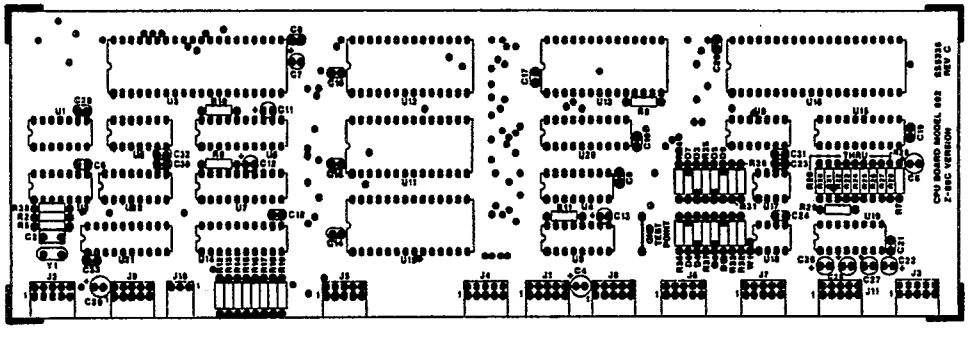
OPTION NAME/NUMBER	DESCRIPTION
"IFB" Option: Emulates a Model 4001 or Model 4002 IFB Control Station	
OPT802-G0	IFB, not installed
OPT802-G1	IFB, 4001, (IFB 1-4, SA1)
OPT802-G5	IFB, 4002, (IFB 5-8, SA2)
NOTE:	
Requires "Option Base"	
Option G5 also requires option G1	
G1 and G5 are both installed	
"ISO" Option: Emulates a model VCP6A Station ISO Control Panel	
OPT802-H0	ISO, VCP6A, not installed
OPT802-H1	ISO, VCP6A, installed
NOTE: Requires "Option Base"	

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

TOP ASSEMBLY - MSTR STA. - MODEL 802	AS3104
SCHEMATIC DIAGRAM - 802	SD3000
SCHEMATIC DIAGRAM - STD 802 MSTR STA INTERFACE	SD3002
OUTLINE DRAWING - 802	OD3012
FAB DETAIL, FRONT PANEL	3005
, RIGHT SIDE RAIL	3007
, LEFT SIDE RAIL	3008
, REAR PANEL	3009
, COVER, TOP & BOTTOM	3010
, FRONT PANEL, ADJ BD.	3011
, SUPPORT, CARD GUIDE	3021 1/2
FAB DETAIL, COVER/SMALL COVER	3165
ASSEMBLY, PCB - MOTHER BD	AS3000-1
SCHEMATIC DIAGRAM	SD3000
MOTHER BD J NUMBERS AND JUMPERS	3096
FAB DETAIL, PCB	3000-1
FAB DETAIL, SUPPORT, ADJ CARD GUIDE	3022
ASSEMBLY, PCB - TALK/SQUAWK/IFB BD	AS3000-3
SCHEMATIC DIAGRAM	SD3000-SHT
FAB DETAIL, PCB	3000-3
ASSEMBLY, PCB - PIO BD # 1, 2 & 3	AS3000-4
SCHEMATIC DIAGRAM	SD3000-SHT 12&13
FAB DETAIL, PCB	3000-4
ASSEMBLY, PCB - CPU BD	AS3000-5
SCHEMATIC DIAGRAM	SD3000-SHT 15
FAB DETAIL, PCB	3000-5
ASSEMBLY, PCB - 4 WIRE BD	AS3000-6
SCHEMATIC DIAGRAM	SD3000-SHT 22
FAB DETAIL, PCB	3000-6
ASSEMBLY, PCB - ADJUST BD	AS3000-7
SCHEMATIC DIAGRAM	SD3000-SHT 7
FAB DETAIL, PCB	3000-7
FAB DETAIL, SUPPORT, ADJ BD	3023
FAB DETAIL, BRACKET, ADJ CARD STOP	3024
ASSEMBLY, PCB - CALL LIGHT BD	AS3000-18
SCHEMATIC DIAGRAM	SD3000-SHT 18
FAB DETAIL, PCB	3000-18
ASSEMBLY - SUB CHASSIS	AS3006
ASSEMBLY, PCB - SWITCH BD	AS3000-9
SCHEMATIC DIAGRAM	SD 3000-SHT 9
FAB DETAIL, PCB	3000-9
FAB DETAIL, SUB CHASSIS	3006
FAB DETAIL, SPEAKER GRILLE	3088

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ANGULAR: DECIMALS .X .XX .XXX MATERIAL FINISH DO NOT SCALE DRAWING	CONTRACT NO.		RTS SYSTEMS BURBANK, CALIFORNIA
	APPROVALS	DATE	DRAWING NUMBER TREE MSTR STA. - MODEL 802
	DRAWN B.MAEZ	12-9-82	
	CHECKED		
	ISSUED		
	SIZE C	FSCM NO. 40512	DWG. NO. DT3176 REV.
	SCALE —		SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	PRODUCTION RELEASE	3-15-88	
	B	REVISED TO MATCH ARTWORK PER ECO 2222	6-10-88	
	C	REVISED PER ECO 2359	12-6-88	
	D	REVISED PER #2391	1-23-89	



SEE SEPARATE PARTS LIST 9030533600

1. THE FOLLOWING ITEMS ARE NOT INSTALLED, U12, U17, U18, U22, W1, U22.

NOTES:

	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.11 1982 #1172
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± 1/16 | DECIMALS .X ± .06, .XX ± .03, .XXX ± .010 | ANGLES ± 30'
MATERIAL
FINISH

CONTRACT NO: SERIES 800

APPROVALS	DATE
DRAWN B. CHAPMAN	6-10-88
CHECKED GM	6-10-88
ISSUED	

DO NOT SCALE DRAWING

RTS SYSTEMS BURBANK, CALIFORNIA

ASSEMBLY DWG - P.C.A. CPU BOARD
Z-80C VERSION "2ND GEN" MODEL 802

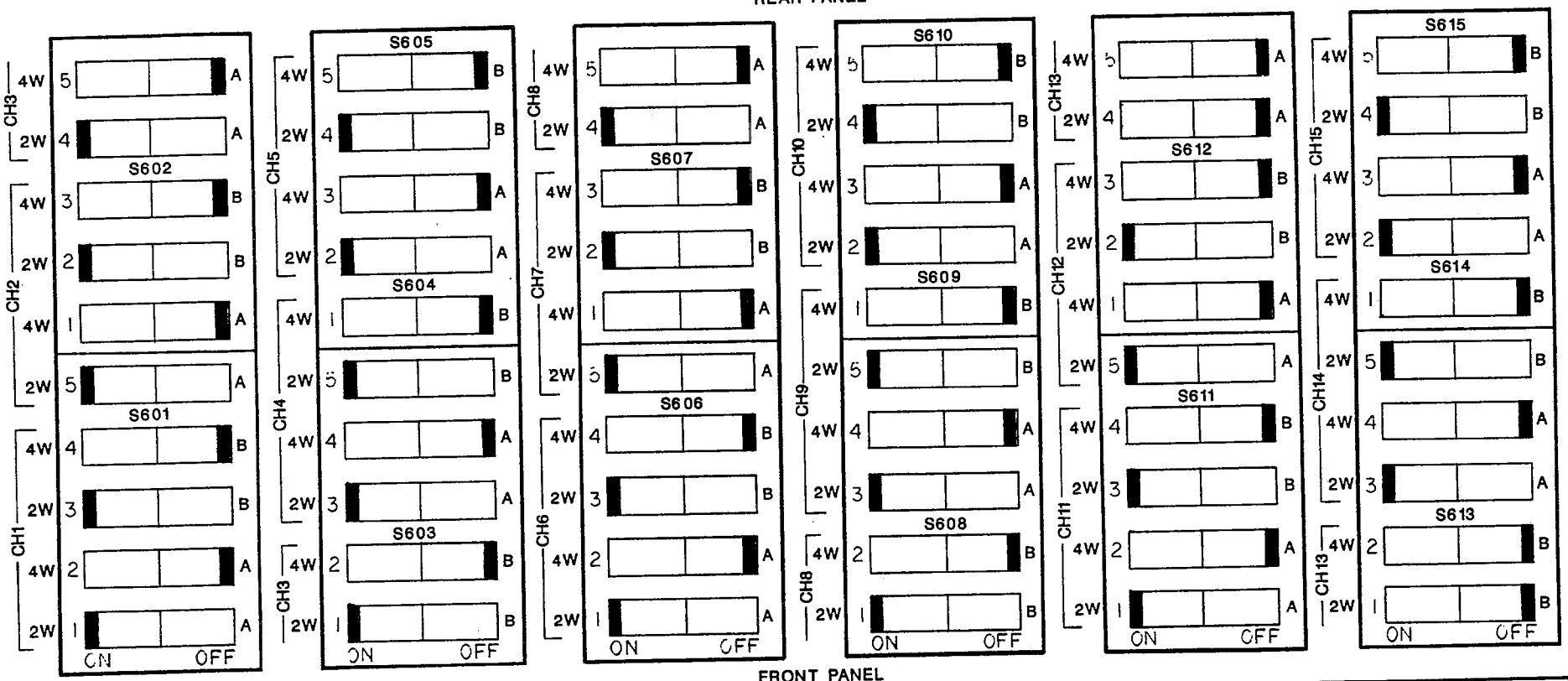
SIZE	FSCM NO	DWG NO	REV
C	60572	AS5336	D

SCALE 1:1 SHEET 1 OF 1

2 WIRE CHANNELS 1-12 (B3 OPTION, CH 7-12, ADDED)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED PER ECO 2691	10-17-89	

REAR PANEL



FRONT PANEL

2. CHAN 13 ALWAYS OFF.

1. 2 WIRE CHANS 1-6. SWITCHES FOR CHANS 7-12, STILL SET FOR 2 WIRE OPTION, EVEN THOUGH NOT USED WITHOUT B3 OPTION.

NOTES:

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.11-1967, R1972
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ±1/16 DECIMALS X ±.06 XX ±.03 XXX ±.010 ANGLES ±30'
MATERIAL
FINISH

CONTRACT NO.

APPROVALS	DATE
DRAWN NMH	
CHECKED	
ISSUED	

DO NOT SCALE DRAWING

RTS SYSTEMS BURBANK, CALIFORNIA

802 MOTHER BOARD SWITCHES

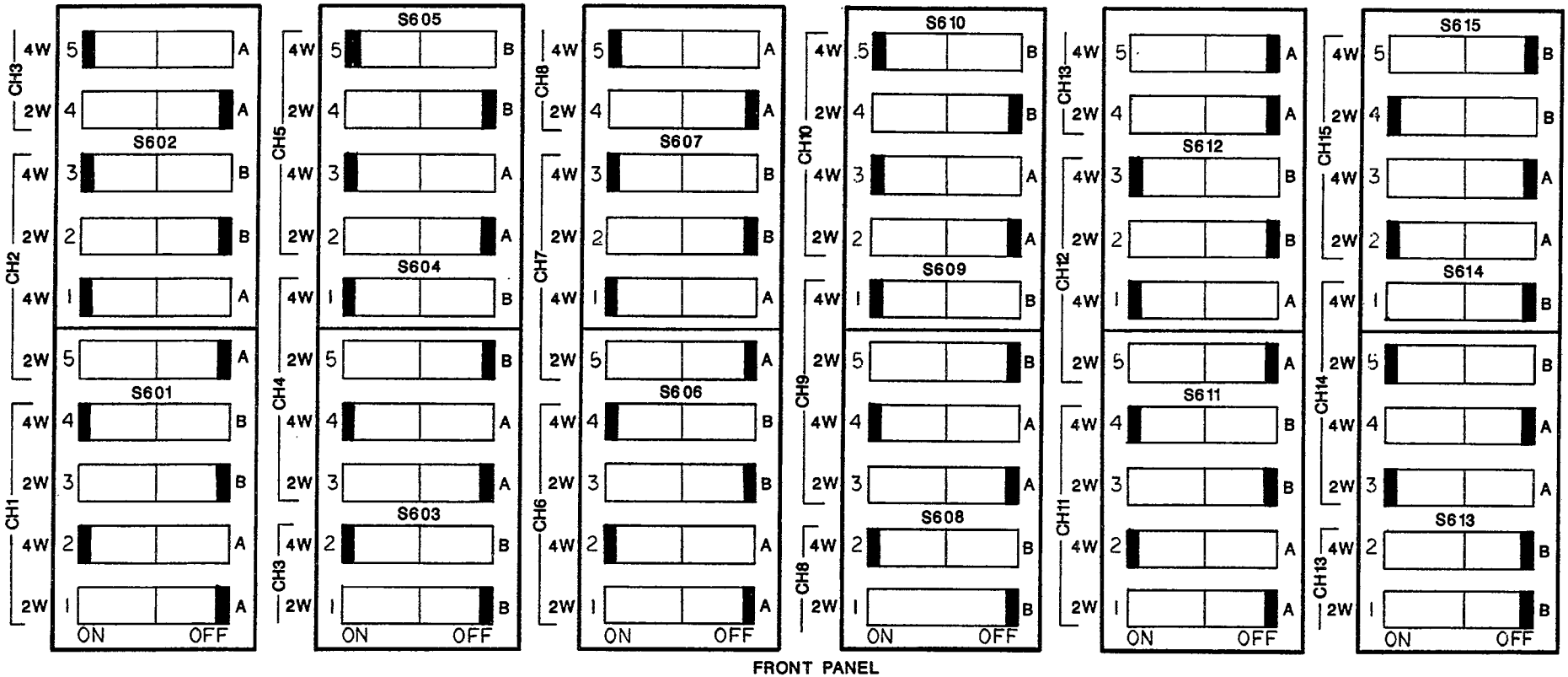
SIZE	FSCM NO.	DWG. NO.	REV.
B	60572	TMI5334	A

SCALE —— SHEET 1 OF 7

4 WIRE CHANNELS 1-12
(C2 & C3 OR C2-4 & C3-4 WITH B3, TALK 7-12, ADDED)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

REAR PANEL



FRONT PANEL

1. CHAN 13 ALWAYS OFF.

NOTES:

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.11-1967, R1972
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ±1/16 DECIMALS X ±.06 XX ±.03 XXX ±.010 ANGLES ±30'
MATERIAL
FINISH

CONTRACT NO.

APPROVALS	DATE
DRAWN NMH	
CHECKED	
ISSUED	

DO NOT SCALE DRAWING

RTS SYSTEMS BURBANK, CALIFORNIA

802 MOTHER BOARD SWITCHES

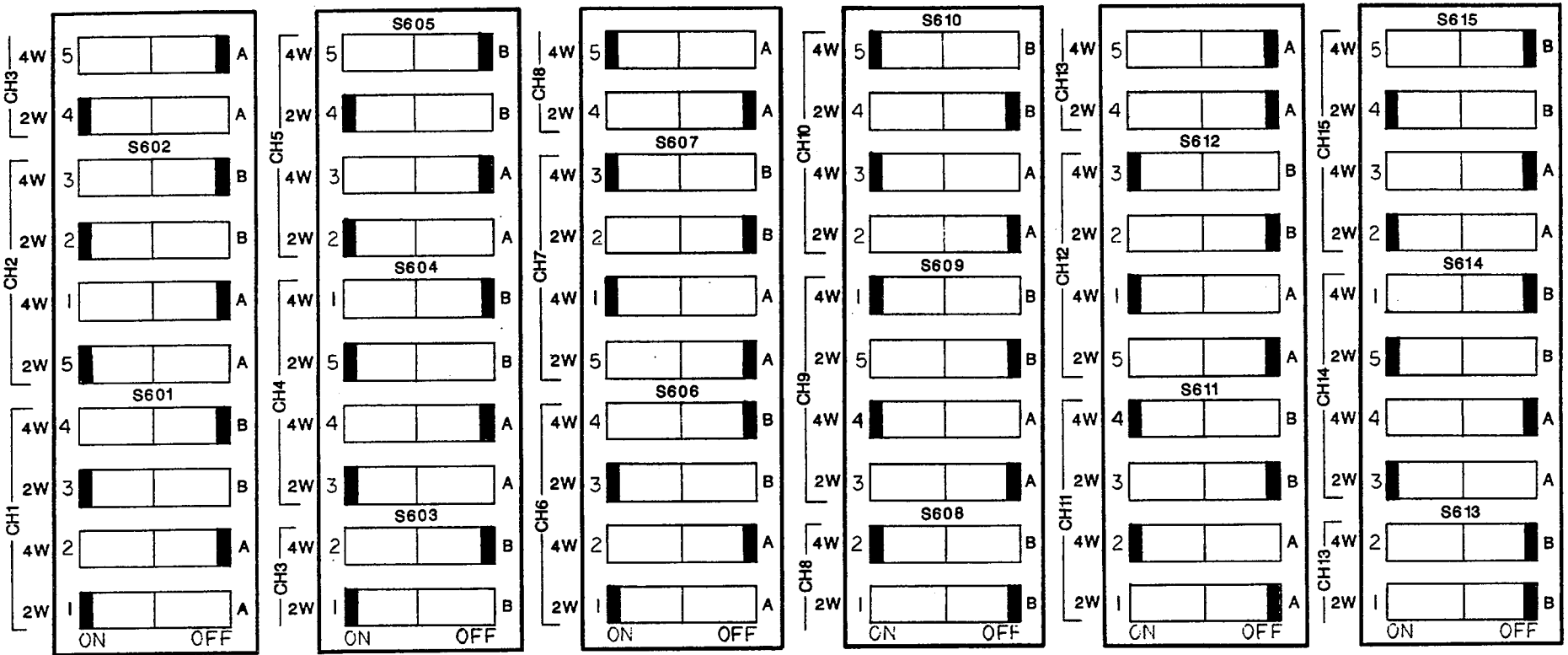
SIZE	FSCM NO.	DWG. NO.	REV.
B	60572	TMI5334	A

SCALE —— SHEET 2 OF 7

2 WIRE CHANNELS 1-6
4 WIRE CHANNELS 7-12 (C3 OR C3-4 W/B3, TALK 7-12, ADDED)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

REAR PANEL



FRONT PANEL

1. CHAN 13 ALWAYS OFF.

NOTES:

NEXT ASSY	USED ON		
APPLICATION			

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.11-1967, R1972
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ±1/16 DECIMALS X ±.06 XX ±.02 XXX ±.010 ANGLES ±30'
MATERIAL
FINISH

CONTRACT NO.

APPROVALS	DATE
DRAWN	
CHECKED	
ISSUED	

DO NOT SCALE DRAWING

RTS SYSTEMS BURBANK, CALIFORNIA

802 MOTHER BOARD SWITCHES

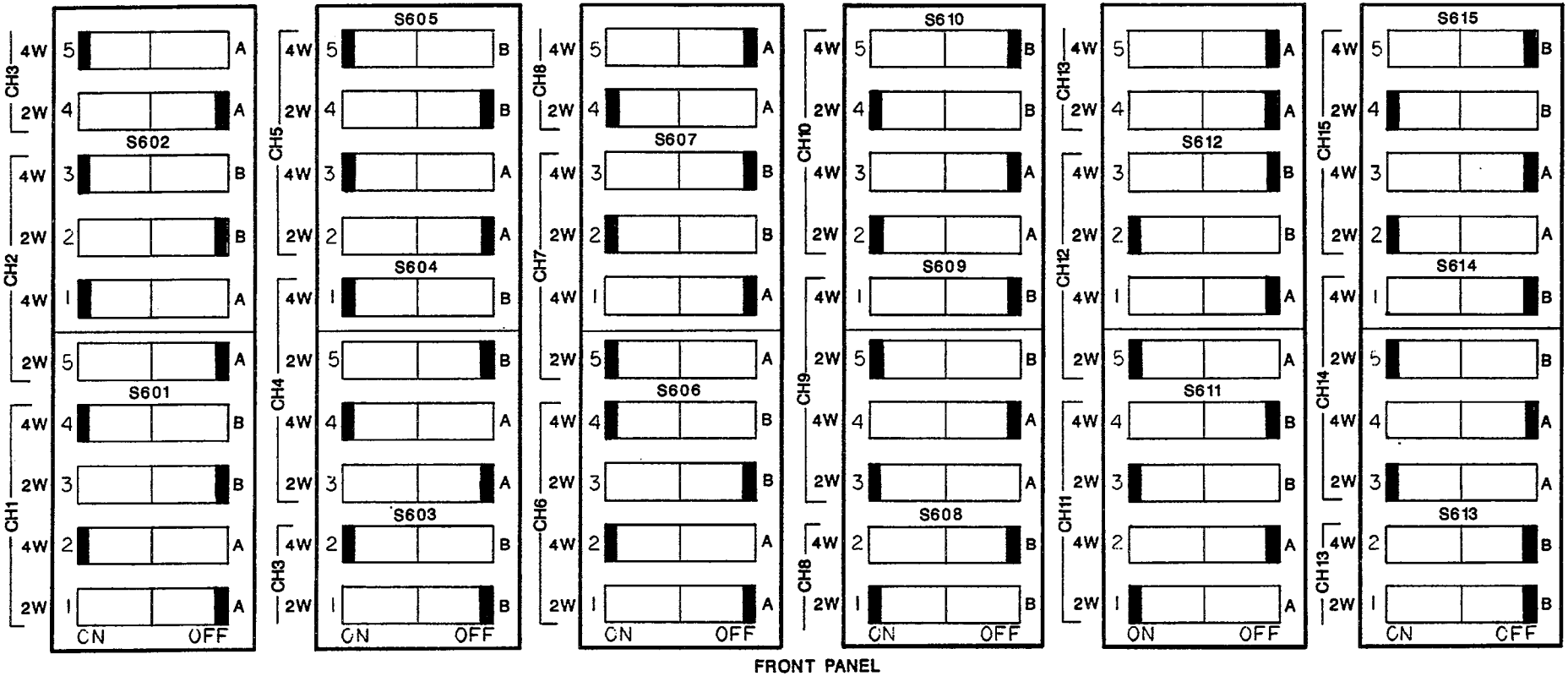
SIZE	FSCM NO.	DWG. NO.	REV.
B	60572	TMI5334	A

SCALE —— SHEET 3 OF 7

4 WIRE CHANNELS 1-6(C2 OR C2-4)
2 WIRE CHANNELS 7-12(B3)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

REAR PANEL



FRONT PANEL

1. CHAN 13 ALWAYS OFF.

NOTES:

UNLESS OTHERWISE SPECIFIED REMOVE ALL BURRS & BREAK SHARP EDGES HOLE TOLERANCES PER ANSI B94.11-1997, R1972 DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/16 DECIMALS .X ±.06 .XX ±.03 .XXX ±.010 ANGLES ±30' MATERIAL FINISH	CONTRACT NO. APPROVALS / DATE DRAWN CHECKED ISSUED DO NOT SCALE DRAWING	RTS SYSTEMS BURBANK, CALIFORNIA 802 MOTHER BOARD SWITCHES SIZE B | FSCM NO. 60572 | DWG. NO. TMI5334 | REV. A SCALE — | SHEET 4 OF 7

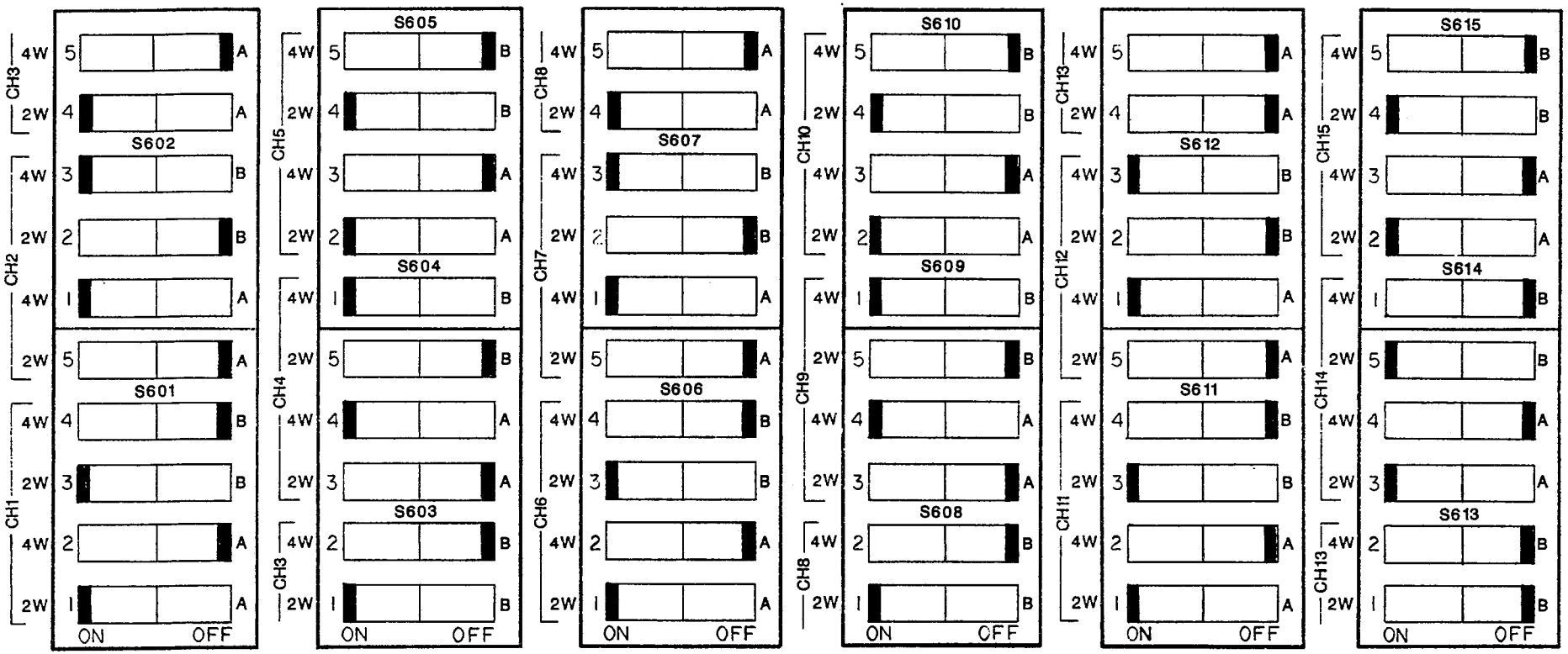
NEXT ASSY | USED ON

APPLICATION

MIXED 2 WIRE & 4 WIRE CHANNELS 1-12 (B3, C2 & C3 OR C2-4 & C3-4 ADDED)

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

REAR PANEL



FRONT PANEL

SHOWN:

2 WIRE	4 WIRE
CH1,3,5, 6,8,10,11 14,15	CH2,4 7,9,12

1. CHAN 13 ALWAYS OFF.

NOTES:

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS & BREAK SHARP EDGES
HOLE TOLERANCES PER ANSI B94.11-1967, R1972
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ±1/16 DECIMALS X ±.06 XX ±.03 XXX ±.010 ANGLES ±30'
MATERIAL
FINISH

CONTRACT NO.

APPROVALS	DATE
DRAWN	
CHECKED	
ISSUED	

DO NOT SCALE DRAWING

RTS SYSTEMS BURBANK, CALIFORNIA

802 MOTHER BOARD SWITCHES

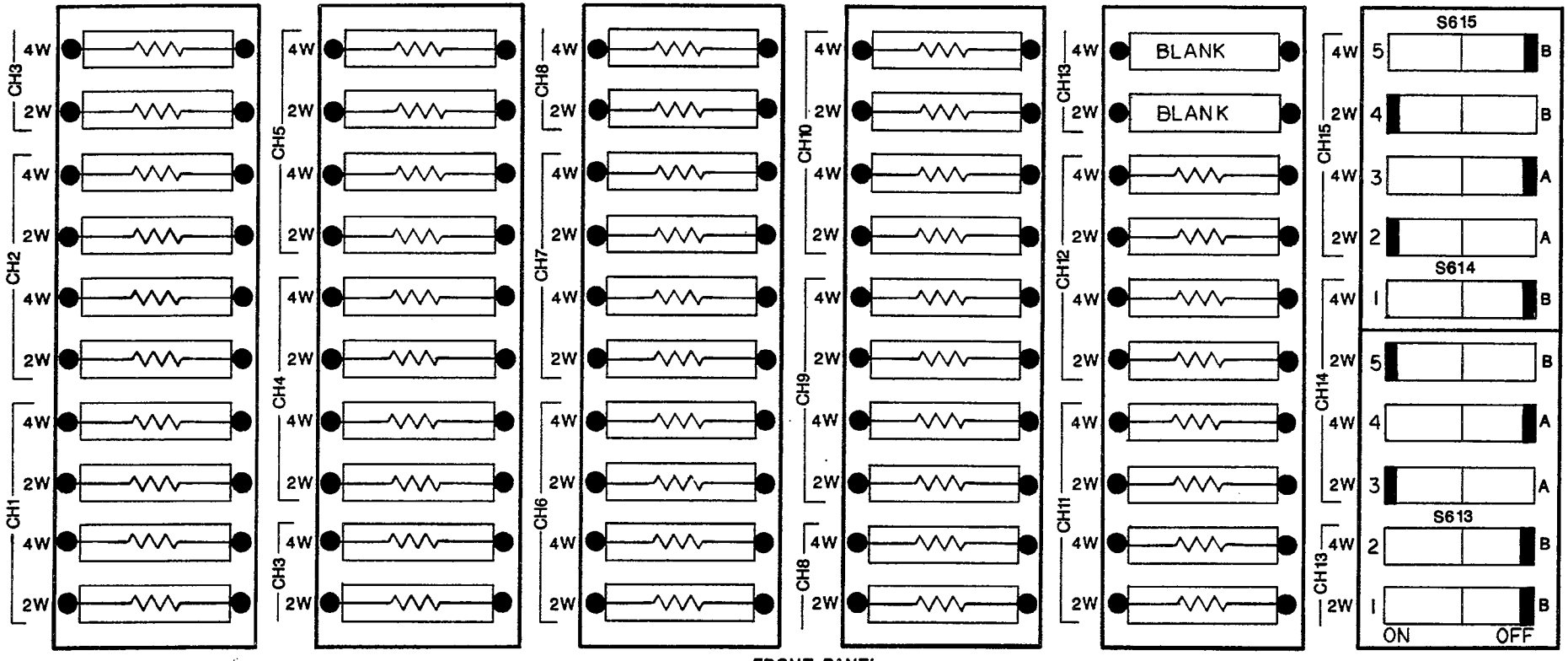
SIZE	FSCM NO.	DWG. NO.	REV.
B	60572	TMI5334	A

SCALE —— SHEET 5 OF 7

2 WIRE/4 WIRE SIMULTANEOUS OPERATION CHANNELS
1-12(B3, C2A & C3A ADDED)

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

REAR PANEL



FRONT PANEL

2. CHAN 13 ALWAYS OFF.
1. ALL RESISTORS ARE 10K, 1/8W.

NOTES:

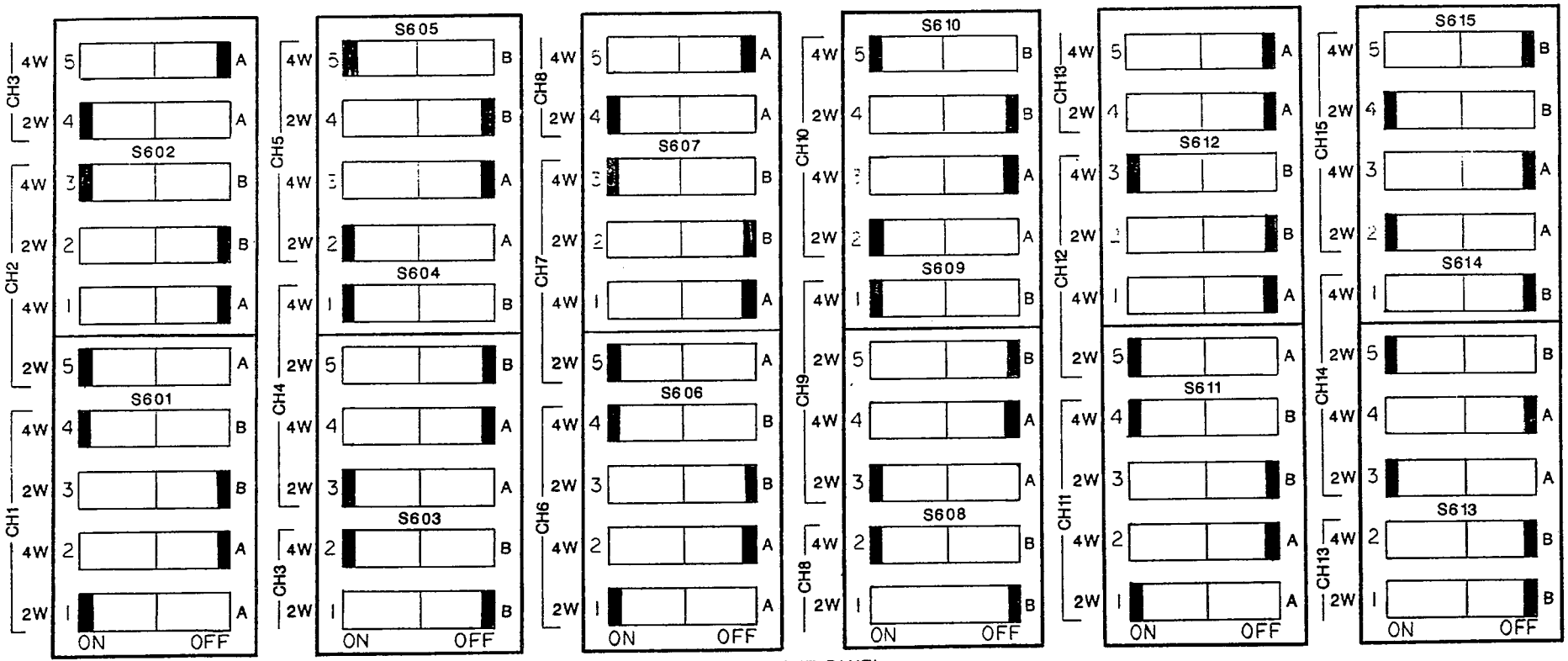
UNLESS OTHERWISE SPECIFIED	CONTRACT NO.	RTS SYSTEMS BURBANK, CALIFORNIA
REMOVE ALL BURRS & BREAK SHARP EDGES HOLE TOLERANCES PER ANSI B94.11-1967, R1972 DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/16 DECIMALS X ±.06 XX ±.03 XXX ±.010 ANGLES ±30' MATERIAL FINISH	APPROVALS / DATE DRAWN NMH CHECKED ISSUED DO NOT SCALE DRAWING	802 MOTHER BOARD SWITCHES SIZE B | FSCM NO. 60572 | DWG. NO. TMI5334 | REV. A SCALE — | SHEET 6 OF 7
NEXT ASSY / USED ON APPLICATION		

4 WIRE CHANNELS 1-12 (C2-3 & C3-3 WITH B3, TALK 7-12, ADDED)

TYPE 3 FOUR WIRE, CONFERENCE + MIX MINUS

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

REAR PANEL



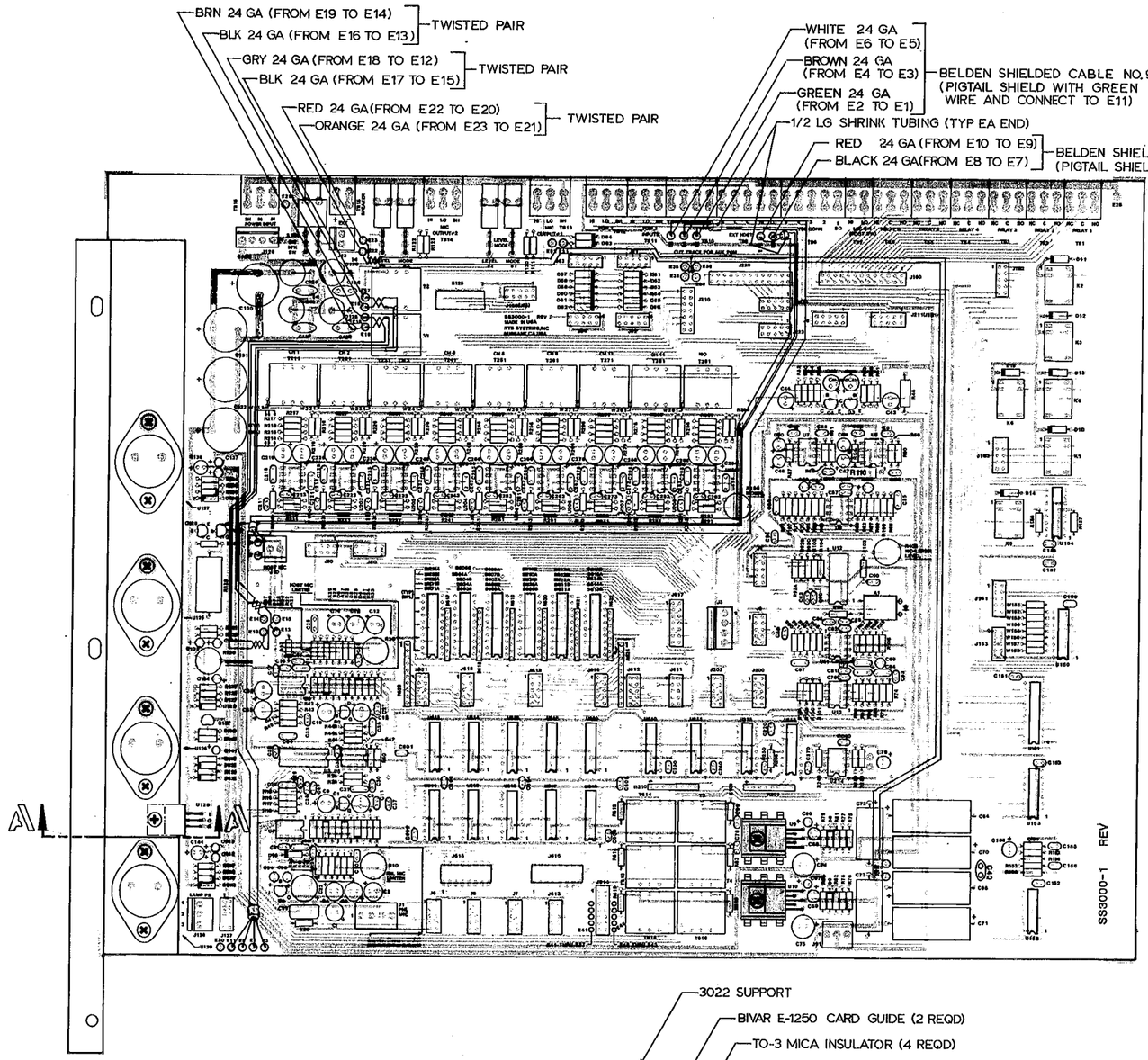
FRONT PANEL

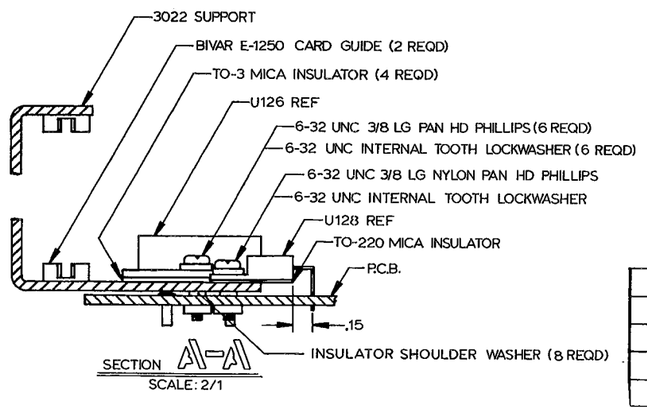
1. CHAN 13 ALWAYS OFF.

NOTES:

UNLESS OTHERWISE SPECIFIED	CONTRACT NO.	RTS SYSTEMS BURBANK, CALIFORNIA
REMOVE ALL BURRS & BREAK SHARP EDGES HOLE TOLERANCES PER ANSI B94.11-1967, R1972 DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ±1/16 DECIMALS X ±.09 XX ±.03 XXX.010 ANGLES ±30'	APPROVALS / DATE DRAWN R.T.CRUZ 10-17-89 CHECKED ISSUED	802 MOTHER BOARD SWITCHES
MATERIAL FINISH	DO NOT SCALE DRAWING	SIZE B · FSCM NO. 60572 · DWG. NO. TMI5334 · REV. · SCALE — · SHEET 7 OF 7
NEXT ASSY / USED ON APPLICATION		

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	AA	REDRAWN TO REFLECT CURRENT ASSEMBLY PROCEDURES	5-2-86	
	AB	CHNG TRACES (NEAR C129) TO MATCH AW REV ECO#96 RB	12/1/86	
	AC	CHNG SHOULDER WASHER CALLOUT IN SECT A-A AS: CYCLONE 3054. ECO 815 RB	3/10/87	
	AD	ADDED R108 PER ECO 1938	9-30-87	
	AE	REVISED PER ECO #2372	1-6-89	
	AF	REVISED PER ECO # 2473 DR	6-8-89	


BRN 24 GA (FROM E19 TO E14)
BLK 24 GA (FROM E16 TO E13)
TWISTED PAIR
GRY 24 GA (FROM E18 TO E12)
BLK 24 GA (FROM E17 TO E15)
TWISTED PAIR
RED 24 GA (FROM E22 TO E20)
ORANGE 24 GA (FROM E23 TO E21)
TWISTED PAIR
WHITE 24 GA (FROM E6 TO E5)
BROWN 24 GA (FROM E4 TO E3)
GREEN 24 GA (FROM E2 TO E1)
BELDEN SHIELDED CABLE NO. 9398 (PIGTAIL SHIELD WITH GREEN WIRE AND CONNECT TO E11)
1/2 LG SHRINK TUBING (TYP EA END)
RED 24 GA (FROM E10 TO E9)
BLACK 24 GA (FROM E8 TO E7)
BELDEN SHIELDED CABLE NO. 8451 (PIGTAIL SHIELD WITH BLACK WIRE AND CONNECT TO E7)
A1
A1
SS3000-1 REV


3022 SUPPORT
BIVAR E-1250 CARD GUIDE (2 REQD)
TO-3 MICA INSULATOR (4 REQD)
U126 REF
6-32 UNC 3/8 LG PAN HD PHILLIPS (6 REQD)
6-32 UNC INTERNAL TOOTH LOCKWASHER (6 REQD)
6-32 UNC 3/8 LG NYLON PAN HD PHILLIPS
6-32 UNC INTERNAL TOOTH LOCKWASHER
U128 REF
TO-220 MICA INSULATOR
P.C.B.
.15
INSULATOR SHOULDER WASHER (8 REQD)

SECTION A1-A1
SCALE: 2/1

AS3104	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

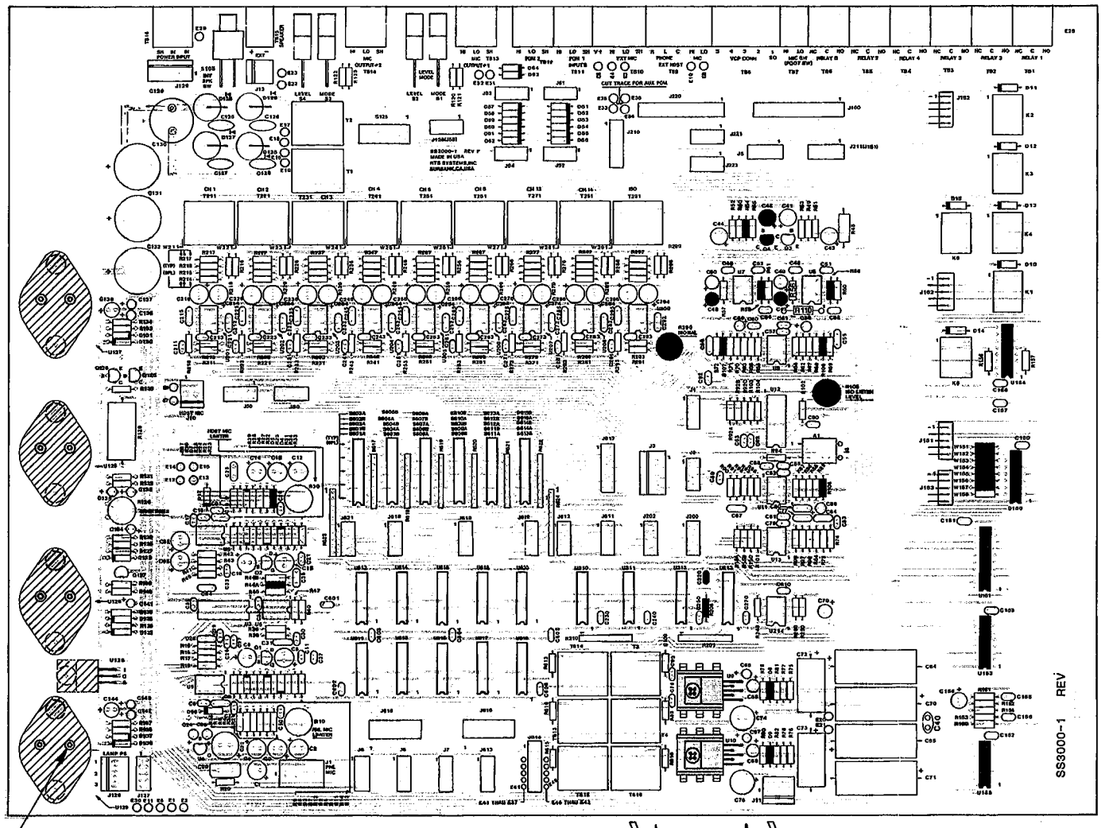
APPROVALS	DATE
DRAWN R.K. Booth	5/2/86
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

ASSY-PCB MOTHERBOARD MODEL 802

SIZE D | FSCM NO. 60572 | DWG. NO. AS3000-01 | REV. AF
SCALE 1/1 | SHEET 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	ADDED PEM NUTS, NOTES 5 & 6, ECO 1695	10-30-86	
	B	CHANG TRACES (MAIN CKT) TO MATCH A AI ZEN ECO 1711	11/86	
	C	PER ECO # 2372	1-3-89	
	D	REVISED PER ECO # 2473 JK	6 8 89	



A A

5
(9 PLACES)

AMPHENOL 1-38 758-0
RECEPTACLE (8 REQD)

AHAM 362 HEATSINK (2 REQD)
4-40 UNC 1/4 LG PAN HD PHILLIPS (2 REQD)
COMPRESSION WASHER (2 REQD) 6
U9, U10
4
KF2-440 PEM NUT (2 REQD)

VIEW A-A
SCALE: 2/1

NOTES:

1. PARTS LISTED BELOW ARE SHOWN FILLED IN OR CROSSHATCHED AND ARE NOT INSTALLED AT THIS LEVEL.

CAPACITORS "C"	RESISTORS "R"	IC'S "U"	JUMPERS "W"
142 220 48 42 47	107 106 290 105 58 59 54 108 44A 23 208	154 128 125 126 127 129 150 151 152 153	151 THRU 157 211 221 231 241 251 261 271 281 291
TRANSISTORS "Q"	DIODES "D"		
4	8 9		

2. ALL PARTS LISTED IN NOTE 1. AND ALL E HOLES SHOULD BE MASKED OFF PRIOR TO SOLDERWAVE.
3. ALL IC'S AND SWITCHES SHOULD HAVE APPROPRIATE DIP SOCKETS.
4. APPLY THERMALLOY 251 THERMAL GREASE BETWEEN U9, U10 AND HEATSINK.
5. INSTALL PEM NUT KF2-632, RTS P/N 1007-0008-00 (9 PLACES)
6. APPLY TORQUE UNTIL COMPRESSION WASHER IS DEPRESSED TO HALF ITS ORIGINAL HEIGHT

AS 3000-01	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN R.K. BOOTH	2/28/86
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

ASSY-PCB MOTHERBOARD MODEL 802

SIZE D | FSCM NO. 60572 | DWG. NO. AS 3000-A1 | REV. D
SCALE 1:1 | SHEET 1

Arch - Eng Supply Co 351-K

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	UPDATED	12-9-82	
	B	REVISED PER ECO# 2391.	1-23-89	

SHEET 4

PANEL MIC

DYN HDST MIC

CARBON MIC HDST

DYN HDST CONN. XLR-5

REMOTE HEADSET - MIC -

BIAS NETWORK

BIAS NETWORK

BIAS NETWORK

40dB PAD

LIMITER

LIMITER

MIC PRE GAIN SET

MIC PRE GAIN SET

PANEL MIC ENABLE

HEADSET MIC ENABLE

USM DRIVER + SUM AMP

MICROPHONE OUTPUTS

50-10

50-10

SM USM

SM USM

SM DRIVER

SHEET 6

SHEET 18

6 CHANNEL CALL LIGHT TRANSMIT ASS'Y

6 CHANNEL CALL LIGHT RECEIVE ASS'Y

LISTEN MODULES

LISTEN CHANNEL SELECT

LISTEN LEVEL ADJ 2W 4W

/6

TALK MODULES SHEET 8

/6

DRIVER

BILAT. CURRENT SOURCE

TALK ENABLE

10 10 10 10 10 10

50 Ω

6 CHANNELS 2W/4W OUTPUTS

SHEET 5

SHEET 7

LISTEN SWITCH SUM AMP

/12

DYN HDST CONN. XLR-5-31

LEFT HEADPHONE

RIGHT HEADPHONE

REMOTE HDST -HEAD-PHONES

LEFT HP AMP

RIGHT HP AMP

LO PASS FILTER

LO PASS FILTER

SUM AMP

SUM AMP

SUM AMP

SUM AMP

SUM AMP

SUM AMP

SQUAWK

MASTER VOLUME

HDST SENSE

SPEAKER

INT TEXT

EXT ONLY

SPEAKER AMP

EXT SPKR

SPKR DIM ATTNR

SPKR ON/OFF SW

CHIME/ CALL TONE

AUX POT SOURCE SELECT

AUX POT DESIGNATE SWITCHES

AUX VOL

SHEET 9

6 CHANNELS 2W/4W OUTPUTS

SHEET 16

POWER SUPPLY

SHEET 6

6 CHANNEL 4 WIRE LISTEN BALANCE/ UNBALANCE TRANSFORMER ASSEMBLY

/6

/12 4 WIRE INPUTS CH 1-6

6 CHANNEL 4 WIRE LISTEN BALANCE/ UNBALANCE TRANSFORMER ASSEMBLY

/6

/12 4 WIRE INPUTS CH 7-12

2 CHANNEL AUX PGM LISTEN BAL./UNBAL. TRANSFORMER ASSEMBLY

PGM INPUTS

/6

SHEET 18

6 CHANNEL CALL LIGHT TRANSMIT ASS'Y

6 CHANNEL CALL LIGHT RECEIVE ASS'Y

SHEET 8

SHEET 8

1 OF 2 AUX BILAT. OUTPUTS

SHEET 11

SWITCHBOARD

/80

SHEET 12 PIO #1

SHEET 13 PIO #2

SHEET 14 PIO #3

SHEET 15 CPU

⚠1 CHIME CIRCUITRY IS ON THE CPU IN THE 802A.

NOTES:

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX± .XXX± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN R. PEKSON	7-26-84
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION, MODELS 802 & 802A
ANALOG BLOCK

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. B

SCALE | SHEET 1 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED & REDRAWN	10-2-82	
	B	UPDATED	12-9-82	SLH
	C	PER ECO #2391	2-10-89	

CRYSTAL 4MHz
CPU
CLK
2MHz
DIVIDER U19,U20
TIMING SIGNALS
J5
TO PIO #2 J403
DEVICE SELECT
2MHz CLOCK TO CHIME
J7
EXT RESET INPUT
RESET DRIVER Q1, D1
RST IN SYSRST
J6
TO RS 232 P.C.B.
DV7
ADDRESS DECODER A U9,U10 EN
IO/M
BCLK
J4
DEV 0-3 A0-A3
DEVICE SELECT
STAND-BY BATTERY
BATTERY CONTROL Q2, D3-D5
NSC 800
RAM EN A D U16 WR
BWR
BRD
A(8-15)
U5 A(8-15)
HIGH ORDER ADDRESS BUFFER
MEM SELECT/U11
J2
ROM EN A DO U12, U13, U14, U15
BUS RECEIVER U7 EN
INTERNAL ADDRESS BUS
INTERNAL ADDRESS/DATA BUS
ADDRESS LATCH U8 EN
A(0-7)
ALE
J3
BUS DRIVER U6 OEN
AD(0-7)
WR WRITE
RD READ
U2
+5, DIGITAL GND
MICROPROCESSOR/CPU (SHEET 15)

J414
ADDRESS DECODER
READ/WRITE DECODER U26-U28
J401 J402 J403 J404 J405
DEBOUNCE NETWORK
SCHMIDT TRIGGER U7,6 U6,5 U3,4 U2,3 U1,2
BUS DRIVER U12 U11 U10 U9 U8
0 1 2 3 4
J413
INTERNAL DATA INPUT BUS
J412
0 1 2 3 4 5
INTERNAL DATA OUTPUT BUS
J415
LATCH U20 U21 U22 U23 U24 U25
OUTPUT DRIVER U13,14 U14,15 U15,16 U16,17 U17,18 U18,19
PIO #1 (SHEET 12)
J406 J407 J408 J409 J410 J411

PIO #2 (SHEET 13)
PIO #3 (SHEET 14)
CHIME OPTION (SHEET 17)

FROM PIO#1, J406-J409
TO PIO#1, J401-J404
LAMPS SWITCHES
SWITCHBOARD (SHEET 11)

EXTERNAL ADDRESS BUS
EXTERNAL DATA INPUT BUS
EXTERNAL DATA OUTPUT BUS
POWER BUS

1. SEE PIO LISTING FOR ALL PIO INPUT/OUTPUT CONNECTIONS.

NOTES: (UNLESS OTHERWISE SPECIFIED)

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

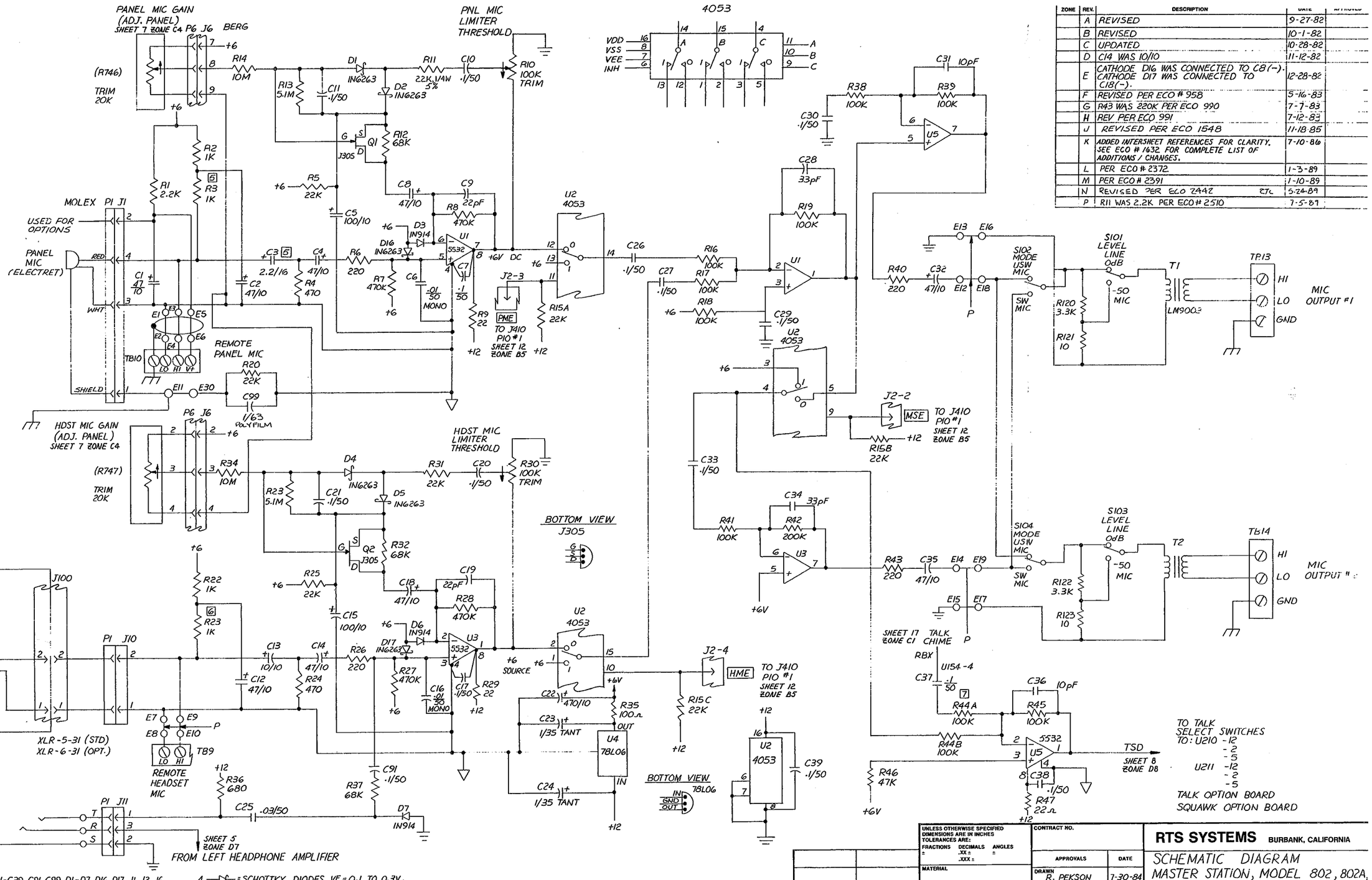
APPROVALS	DATE
DRAWN S. DUEBBER	10/1/82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
DIGITAL BLOCK MODEL 802, 802A
MASTER STATION

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. C
SCALE | SHEET 3 OF 26

Arch - Eng. Supply Co. 357-0091



ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED	9-27-82	
	B	REVISED	10-1-82	
	C	UPDATED	10-28-82	
	D	C14 WAS 10/10	11-12-82	
	E	CATHODE D16 WAS CONNECTED TO C8(-). CATHODE D17 WAS CONNECTED TO C18(-).	12-28-82	
	F	REVISED PER ECO # 958	5-16-83	
	G	R43 WAS 220K PER ECO 990	7-7-83	
	H	REV PER ECO 991	7-12-83	
	J	REVISED PER ECO 1548	11-18-85	
	K	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES.	7-10-86	
	L	PER ECO # 2372	1-3-89	
	M	PER ECO # 2391	1-10-89	
	N	REVISED PER ECO 2442 ETC	5-24-89	
	P	R11 WAS 2.2K PER ECO # 2510	7-5-89	

USED ON THIS PAGE: C1-C39, C91, C99, D1-D7, D16, D17, J1, J2, J6, J10, J11, J100, R1-R20, R22-R47, R120-R123, R746, R747, U1-U5, T1, T2, Q1, Q2, TB9, TB10, TB13, TB14, E1-E18, E30

NOT USED ON THIS PAGE: C40-C90, D8-D15, R21, R48-R119

4. ⟶|— = SCHOTTKY DIODES, VF = 0.1 TO 0.3V.
3. CUTTABLE TRACES (USED FOR OPTIONS) ARE SHOWN: ##.
2. CAP. VALUES ARE SHOWN: MICROFARADS/VOLTS.
1. ALL RESISTORS ARE CARBON FILM, 1/4 WATT, ±5%.

NOTES: UNLESS OTHERWISE SPECIFIED

[7] OMIT R44A WHEN CHIME OPTION IS NOT USED.
[6] USE ON TYPE B HDST MIC ELECTRET OPTION ONLY.
[5] FOR DYNAMIC PANEL MIC; REMOVE R3. CHANGE VALUE OF C3 TO 10/10

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION | DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN R. PEKSON	7-30-84
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION, MODEL 802, 802A,
MIC PRE

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. P
SCALE | SHEET 4 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED	9-27-82	
	B	REVISED	10-2-82	
	C	UPDATED	10-28-82	
	D	UPDATED	11-12-82	
	E	REV PER ECO # 790	2-14-83	
	F	REV PER ECO # 956 & 957	4-28-83	
	G	REV PER ECO # 954 & 955	5-16-83	
	H	REV PER ECO # 1017	6-14-83	
	J	REV PER ECO # 1130	11-9-80	
	K	ADDED NOTE (8)	12-2-83	
	L	REVISED PER ECO 1284	9-7-84	
	M	REVISED PER ECO 1321	11-12-84	
	N	REVISED PER ECO 1388	1-15-84	
	P	REVISED PER ECO 1408	1-21-85	
	R	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES.	7-10-86	
	S	C66,67 WERE .2/50 MONO). REF ECO 1653 NN	8-8-96	
	T	ADDED R108 PER ECO 1938 GM	9-30-97	
	U	R153 DESTINATION, R65 WAS 22K ECO # 2117	4-1-88	
	V	ADDED C40 PER ECO # 21667	4-1-88	
	W	PER ECO # 2372	1-3-89	
	X	PER ECO # 2391	2-10-89	
	Y	REVISED PER ECO # 2510	5-18-89	

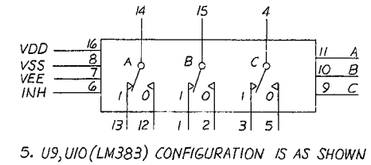
(10) THESE COMPONENTS ARE PART OF AN ALTERNATE ISO CIRCUIT, USED ONLY WHEN CHANNEL 13 LISTEN IS USED IN 4-WIRE MODE.

(9) OPTIONAL PARTS C47, C48, R58, R59 MAY BE ADDED TO ADJUST HEADPHONE AMPLIFIER GAIN.

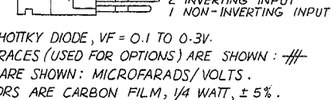
(8) THESE PARTS OPTIONAL. (D8, D9)

7. LIGHT DEPENDENT RESISTOR PN CLM6000 OR VTL5C2.

6. 4053 CONFIGURATION IS AS SHOWN BELOW.



5. U9, U10 (LM383) CONFIGURATION IS AS SHOWN BELOW.



4. —▷|— = SCHOTTKY DIODE, VF = 0.1 TO 0.3V.
3. CUTTABLE TRACES (USED FOR OPTIONS) ARE SHOWN: ⫽⫽
2. CAP. VALUES ARE SHOWN: MICROFARADS/VOLTS.
1. ALL RESISTORS ARE CARBON FILM, 1/4 WATT, ± 5%.

NOTES: (UNLESS OTHERWISE SPECIFIED)

USED ON THIS PAGE: C40-C91, D8, D9, J2-J5, J7, J8, J11, J13, J50, J100, J223, Q3, Q4, R48-R104, R109, R292, R153, T3, T4, TB9, TB15, E20-E23

NOT USED ON THIS PAGE: R100, R105-R108

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .XXX ± | ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN R. PEKSON	8-2-84
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MOTHER BOARD HEADPHONE AND SPEAKER AMP
MASTER STATION, MODEL 802, 802A

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. Y
SCALE | SHEET 5 OF 20

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	K	REVISED PER ECO 1581	1-23-86	
	L	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES.	7-10-86	
	M	PER ECO # 2372	1-3-89	
	N	PER ECO# 2391	2-10-89	
	P	REVISED PER ECO # 2691 CR	10-17-89	

13 2W/4W DIP SWITCH ARRAY OPTION

ELECTRONIC LISTEN SWITCHES

TO J602 4 WIRE OPTION P.C.B. (SHEET 22)

TO J602 4 WIRE OPTION P.C.B. (SHEET 22)

ALB1 S601A 1,2 — R617A 100K — U611 A 4 — XLB1
ALF1 S601B 3,4 — R617C 100K — U612 A 4 — XLF1
ALB2 S602A 5,6 — R617E 100K — U612 B 15 — XLB2
ALF2 S602B 7,8 — R617F 100K — U612 A 14 — XLF2
ALB3 S603A 9,10 — R617G 100K — U611 A 14 — XLB3
ALF3 S603B 1,2 — R618A 100K — U611 B 15 — XLF3
ALB4 S604A 3,4 — R618C 100K — U614 C 4 — XLB4
ALF4 S604B 5,6 — R618E 100K — U614 B 15 — XLF4
ALB5 S605A 7,8 — R618F 100K — U614 A 14 — XLB5
ALF5 S605B 9,10 — R618G 100K — U613 A 14 — XLF5
ALB6 S606A 1,2 — R619A 100K — U613 B 15 — XLB6
ALF6 S606B 3,4 — R619C 100K — U613 C 4 — XLF6

ALB7 S607A 5,6 — R619E 100K — U616 B 15 — XLB7
ALF7 S607B 7,8 — R619F 100K — U616 A 14 — XLF7
ALB8 S608A 9,10 — R619G 100K — U615 A 14 — XLB8
ALF8 S608B 1,2 — R620A 100K — U615 C 4 — XLF8
ALB9 S609A 3,4 — R620C 100K — U618 A 14 — XLB9
ALF9 S609B 5,6 — R620E 100K — U617 A 14 — XLF9
ALB10 S610A 7,8 — R620F 100K — U615 B 15 — XLB10
ALF10 S610B 9,10 — R620G 100K — U615 C 4 — XLF10
ALB11 S611A 1,2 — R621A 100K — U617 C 4 — XLB11
ALF11 S611B 3,4 — R621C 100K — U617 B 15 — XLF11
ALB12 S612A 5,6 — R621E 100K — U618 C 4 — XLB12
ALF12 S612B 7,8 — R621F 100K — U618 B 15 — XLF12

ALB13 S613A 9,10 (11) — R622G 100K — U619 A 14 — XLB13
ALF13 S613B 1,2 (11) — R622A 100K — U619 C 4 — XLF13
ALB14 S614A 3,4 (11) — R622C 100K — U619 B 15 — XLB14
ALF14 S614B 5,6 (11) — R622E 100K — U620 A 14 — XLF14

ALB15 — R622G 100K — U620 B 15 — XLB15
ALF15 — R623A 100K — U620 C 4 — XLF15
ALB16 — R623B 100K — XLB16
ALF16 — R623D 100K — XLF16

J615 TO J701 ADJ. BD. SHEET 7 ZONE D8

J616 TO J702 ADJ. BD. SHEET 7 ZONE B8

FROM ISO BILAT 15 (SHEET 8) ZONE B2

SHEET 19 ZONE B3 — J614 — T613 R614 4.7K — T614 R613 4.7K SHEET 8

REFERENCE SHEET 19 ZONE B4 — J161 — PGM 1 (REAR PANEL) TB11 — T615 R615 4.7K — T616 R616 4.7K — PGM 2 TB12

AUX GAIN (FRONT PANEL) — J613 P613 — R600A 50K — R600B 50K

TO J101 LINE CONN. (SHT 20) — J220 — E33 E35 E34 E36

4053

VDD 16, VSS 8, VEE 7, INH 6 — A: 14 / 13 — B: 15 / 12 — C: 4 / 5 — 11 A, 10 B, 9 C

N.C. R623A 100K

J621: LG1 LG2 LG3 LG4 LG5 LG6 LG7 LG8 — TO PIO #2 J406 SHEET 13 ZONE D5

U611 U612 U613 U614 U615 U616 U617 U618 U619 U620

C601 C602 C603 C604 C605 C606 — +12

J618: N.C. 1 2 3 4

J619: N.C. 1 2 3 4

N.C. R624A 100K

J622: LG9 LG10 LG11 LG12 LG13 LG14 LG15 LG16 — TO PIO #2 J407 SHEET 13 ZONE C5

R624B R624C R624D R624E R624F R624G R624H R624I 100K

J614 — E37 E42 E38 E43 E39 E44 E40 E45 E41 E46 — SHEET 19 ZONE B3

USED ON THIS PAGE: C601-C606, R600, R613-R624, T613-T616, U611-U620
NOT USED: J620, R607-R612

13 SEE TMI5334 FOR EXAMBLES OF DIP SWITCH ARRAY SET-UP.
12 R617-R621 SECTIONS B & D; R622 SECTIONS B, D, F & G ARE NOT CONNECTED.
11 DELETE S613A, S613B, S614A, S614B FOR ISO OPTION.
10. SEE ALSO SHEET 13 AND SHEET 22
9 FROM BILATERAL CURRENT SOURCES – CHANNELS 1-6, SHEET 8.
8 TO TALK OPTION P.C.B., CHANNELS 7-12, J317 SHEET 9.
7 CONNECTS TO CALL LIGHT OPTION P.C.B RECEIVE CHANNELS 7-12, J1802 SHEET 18.
6 CONNECTS TO CALL LIGHT OPTION P.C.B., RECEIVE CHANNELS 1-6, J1802 SHEET 18.
5. T613-T616 ARE 600:600 TRANSFORMERS LM9003 OR EQUIVALENT.
4. U611 – U620 ARE 4053.
3. R617 – R622 ARE 100K SIPS. (8 POS); R623, R624 ARE 100K SIPS (10 POS.)
2. C601 – C606 ARE 0.1/50V MONO CERAMIC BYPASS CAPACITORS.
1. ALL RESISTORS ARE 1/4 W, 5% CARBON FILM.
NOTES: UNLESS OTHERWISE SPECIFIED

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN R. NEILSON	1-23-86
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION MODEL 802, 802A, (LISTEN SWITCHING)

SIZE D | FSCM NO 60572 | DWG. NO. SD 3000 | REV. P
SCALE | SHEET 6 OF 26

Arch - Eng. Supply Co. 267-8691

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	C	REVISED	10-28-82	
	D	UPDATED	11-23-82	
	E	J706 WAS A MOLEX CONN.; ADDED J706 PIN 4, J701 PINS 10,7, 9,8 WERE 7,10,8,9	12-29-82	
	F	REVISED PER ECO # 832	4-6-83	
	G	REVISED PER ECO # 939	4-11-83	
	H	REV PER ECO # 956 & 957	4-28-83	
	J	REV PER ECO # 955	5-16-83	
	K	REV PER ECO # 997	6-13-83	
	L	REVISED PER ECO 1474	7-9-85	
	M	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES.	7-10-86	
	N	CHNG DIP SW FUNCTION CALLOUTS R8	9/12/86	
	P	PER ECO # 2391	2-10-89	

TO J615 MOTHERBOARD SHEET 6 ZONE D4

2/4 WIRE INPUTS J701

BALANCE SETS

LEVEL SETS

BUFFER AMPS

HP AMP/ SPK AMP DESIGNATE DIP SWITCHES

LEFT BUS

RIGHT BUS

XLB 1 / XLF 1 — R701 10K — R721 20K — U701 — S721 R737I / S741 R739I / S761 R741I

XLB 2 / XLF 2 — R702 10K — R722 20K — U701 — S722 R737H / S742 R739H / S762 R741H

XLB 3 / XLF 3 — R703 10K — R723 20K — U702 — S723 R737G / S743 R739G / S763 R741G

XLB 4 / XLF 4 — R704 10K — R724 20K — U702 — S724 R737F / S744 R739F / S764 R741F

XLB 5 / XLF 5 — R705 10K — R725 20K — U702 — S725 R737E / S745 R739E / S765 R741E

XLB 6 / XLF 6 — R706 10K — R726 20K — U702 — S726 R737D / S746 R739D / S766 R741D

XLB 7 / XLF 7 — R707 10K — R727 20K — U701 — S727 R737C / S747 R739C / S767 R741C

XLB 8 / XLF 8 — R708 10K — R728 20K — U701 — S728 R737B / S748 R739B / S768 R741B

XLB 9 / XLF 9 — R709 10K — R729 20K — U703 — S729 R737B / S749 R740B / S769 R742B

XLB 10 / XLF 10 — R710 10K — R730 20K — U703 — S730 R738C / S750 R740C / S770 R742C

XLB 11 / XLF 11 — R711 10K — R731 20K — U704 — S731 R738D / S751 R740D / S771 R742D

XLB 12 / XLF 12 — R712 10K — R732 20K — U704 — S732 R738E / S752 R740E / S772 R742E

XLB 13 / XLF 13 — R713 10K — R733 20K — U704 — S733 R738F / S753 R740F / S773 R742F

XLB 14 / XLF 14 — R714 10K — R734 20K — U704 — S734 R738G / S754 R740G / S774 R742G

J702 — TO J616 MOTHER BOARD SHEET 6 ZONE B4

TO J616 MOTHERBOARD

AUX INPUTS

4X1H — 4X1L — 4X2H — 4X2L

R735 20K — U703 — S735 R738H / S755 R740H / S775 R742H

R736 20K — U703 — S736 R738I / S756 R740I / S776 R742I

(SHEET 5 ZONE D4) TO J4 AT MOTHERBOARD

J704

SIDETONE LEVEL ADJ — R743 20K

SQUAWK LEVEL — R744 20K — R745 20K

SPEAKER BUS — E1 E2 E3

CHIME LEVEL — C702 33pF — R749 150K — R748 47K — C701 10/16 TANT.

LEFT HP SUM AMP — U705 — C703 1/35 — C704 1/35 — R750 10K

RIGHT HP SUM AMP — R751 47K — C706 33pF — R752 150K — C705 10/16 — C708 1/35 — C707 1/35 — R753 10K

SPKR SUM AMP — C710 33pF — R754 150K — C709 10/16 — C712 1/35 — C711 1/35 — R755 10K

E4 E5 E6 E7 E8 E9

J703

TO R100A,CW (SH)

TO R100B,CW (SH)

TO J8 MOTHERBOARD SHEET 5

TO R100C,CW (SH)

LAMP ADJ — R761 10K — +12V — R762 10K

R763 1K — R764 4.7K

J704 P704 P6 J6 — TO R140 (SHEET 16) ZONE C4

P4 J4 — TO A1 (SHEET 5) ZONE A5

SPKR DIM — R715 R716 R717 R718 R719 R720 22Ω — U701 U702 U703 U704 U705 U706

C713 C714 C715 C716 C717 C718 .1/50

PNL MIC GAIN — R746 20K

HDST MIC GAIN — R747 20K

J704 P704 P6 J6 (SHEET 4) ZONE D7

SHEET 4 ZONE C7 STATUS LED'S

+5V

R760I 200Ω — DS700 — D700 IN4004

R760H 200Ω — DS701 — D701 IN4004

R760G 200Ω — DS702 — D702 IN4004

R760F 200Ω — DS703 — D703 IN4004

R760E 200Ω — DS704 — D704 IN4004

R760D 200Ω — DS705 — D705 IN4004

R760C 200Ω — DS706 — D706 IN4004

R760B 200Ω — DS707 — D707 IN4004

R760A 220Ω — SPARE

DIP SWITCHES

S701, NOT USED

S702, NOT USED

S703, IFB ON / OFF

S704, IFB 8/4 OR 150 12/6

S705, PRESET EXCLUSIVE

S706, TLK/LIST PAIR EXCL

S707, COLD START

S708, SET-UP DISABLE

J705 P705 — J401 — TO PIO #2 SHEET 13 ZONE B8

J706 — +12 (ANALOG) — +6 (ANALOG) — ANALOG GND — +5 (DIGITAL)

R756 1K — C719 100/6

S709 MICROPROCESSOR RESET — RST HI — RST LO — TO CPU CARD J7 SHEET 15 ZONE C8

TO MOTHER BOARD J60 SHEET 19 ZONE A5

J411 — SHEET 12 ZONE A5 — TO PIO #1

USED ON THIS PAGE: C701-C719, J701-J706, R701-R756, R761-R764, S701-S709, S736, S741-S756, S761-S776, U701-U706, DS700-DS703

NOT USED ON THIS PAGE: R757-R759, S710-S720, S737-S740, S757-S760

6 ALTERNATE VALUE: 100K.

5. U705, U706 ARE NE5532N.

4. U701-U704 ARE MC3403N.

3. R737-R742 = 47K SIPS.

2. R760 = 220Ω SIP.

1. RESISTORS ARE 1/4 W CARBON FILM ± 5%. CAPACITORS VALUES ARE MICROFARADS/VOLTS.

NOTES: UNLESS OTHERWISE SPECIFIED.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN R. PEKSON	8-1-84
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION MODEL 802, 802A, (ADJUSTMENT BOARD)

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. P

SCALE | SHEET 7 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED & REDRAWN	10-12-82	
	B	UPDATED	10-28-82	
	C	UPDATED	12-9-82	
	D	UPDATED PER ECO 931	4-8-83	
	E	REV PER ECO #954 (B MAR#)	5-16-83	
	F	REV. PER ECO #997 (B MAR#)	6-13-83	
	G	REV. PER ECO #1033 (B MAR#)	6-24-83	
	H	REVISED PER ECO 1581	1-27-86	
	J	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO #1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES. CHANGED PIN NO'S 1&2 TO 13 & 12 ON U212.	7-10-86	
	K	PER ECO # 2372	1-3-89	
	L	PER ECO # 2391	2-10-89	

TSD (FROM US-1)

J202 LTX1 C211 .1/50 MONO R211 10K ALB1 C212 33pF R212 10K U201 C213 .1/50 R213 22Ω +12 C214 10/25 R214 60.4K ±1% ALF1 C215 33pF R215 20K ±1% U201 R216 60.4K ±1% R217 20K ±1% R218 100Ω C216 47/10 T211 W211 R219 100K +6 J210 TO J101 (SHEET 20 ZONE D7)

J202 LTX2 C221 .1/50 MONO R221 10K ALB2 C222 33pF R222 10K U202 C223 .1/50 R223 22Ω +12 C224 10/25 R224 60.4K ±1% ALF2 C225 33pF R225 20K ±1% U202 R226 60.4K ±1% R227 20K ±1% R228 100Ω C226 47/10 T221 W221 R229 100K +6

+12 C230 .1/50 U210 4053 +6 R210A 22K R210B 22K R210C 22K TG 1 TG 2 TG 3 J200 TO J408 PIO #2 SHEET 13 ZONE C5

J202 LTX3 C231 .1/50 MONO R231 10K ALB3 C232 33pF R232 10K U203 C233 .1/50 R233 22Ω +12 C234 10/25 R234 60.4K ±1% ALF3 C235 33pF R235 20K ±1% U203 R236 60.4K ±1% R237 20K ±1% R238 100Ω C236 47/10 T231 W231 R239 100K +6

+12 C240 .1/50 U211 4053 +6 R210D 22K R210E 22K R210F 22K TG 4 TG 5 TG 6 J200 TO J408 PIO #2 SHEET 13 ZONE C5

J202 LTX4 C241 .1/50 MONO R241 10K ALB4 C242 33pF R242 10K U204 C243 .1/50 R243 22Ω +12 C244 10/25 R244 60.4K ±1% ALF4 C245 33pF R245 20K ±1% U204 R246 60.4K ±1% R247 20K ±1% R248 100Ω C246 47/10 T241 W241 R249 100K +6 J210 TO J101 (SHT 20 ZONE D7)

J202 LTX5 C251 .1/50 MONO R251 10K ALB5 C252 33pF R252 10K U205 C253 .1/50 R253 22Ω +12 C254 10/25 R254 60.4K ±1% ALF5 C255 33pF R255 20K ±1% U205 R256 60.4K ±1% R257 20K ±1% R258 100Ω C256 47/10 T251 W251 R259 100K +6

J202 LTX6 C261 .1/50 MONO R261 10K ALB6 C262 33pF R262 10K U206 C263 .1/50 R263 22Ω +12 C264 10/25 R264 60.4K ±1% ALF6 C265 33pF R265 20K ±1% U206 R266 60.4K ±1% R267 20K ±1% R268 100Ω C266 47/10 T261 W261 R269 100K +6

J202

+12 C250 .1/50 U212 4053 +6 R210G 22K R210H 22K R210J 22K TG 13 J200 TO J408 PIO #2 SHEET 13 ZONE C5

LTX13 C271 .1/50 MONO R271 10K ALB13 C272 33pF R272 10K U207 C273 .1/50 R273 22Ω +12 C274 10/25 R274 60.4K ±1% ALF13 C275 33pF R275 20K ±1% U207 R276 60.4K ±1% R277 20K ±1% R278 100Ω C276 47/10 T271 W271 R279 100K +6 R201C 22K +12 BILAT 13, IFB #1 TO J102 SHEET 19 ZONE B4 J211 (J161)

LTX14 C281 .1/50 MONO R281 10K ALB14 C282 33pF R282 10K U208 C283 .1/50 R283 22Ω +12 C284 10/25 R284 60.4K ±1% ALF14 C285 33pF R285 20K ±1% U208 R286 60.4K ±1% R287 20K ±1% R288 100Ω C286 47/10 T281 W281 R289 100K +6 R250 100K BILAT 14, IFB #2 J211 (J161) TO J102 SHEET 19 ZONE B4 R201E 22K +12 ISO BILAT TALK GATE J2 TO J410 PIO #1 SHEET 12 ZONE B5

+12 U212 +6 R201B 22K TG 14 SES J200 TO J408/PIO #2 SHEET 13 ZONE C5 J12 TO J410 PIO #1 SHEET 12 ZONE B5 R240 22 C210 .1/50 U U214 1/2 5532 R280 100K U214 1/2 5532 TO CW, SIDETONE POT, ADJ BOARD TO J4 SHEET 5 ZONE D4

U213 4053 +6 TO C220 (SHT 5) J2 R201F +12V [10] R290 ISO LISTEN LEVEL (OPTION)

LTX15 C291 .1/50 MONO R291 10K TO SG13A PINS 9&10 (SHEET 6) TO SG13B PINS 1&2 (SHEET 6) C292 33pF R292 10K U209 C293 .1/50 R293 22Ω +12 C294 10/25 R294 60.4K ±1% C295 33pF R295 20K ±1% U209 R296 60.4K ±1% R297 20K ±1% R298 100Ω C296 TZ91 W291 R299 100K +6 BILAT 15, ISO TO J106 SHEET 23 ZONE D5 J51 TB8 VCP CONN. REAR PANEL

[10] R290 IS PART OF AN ALTERNATE ISO CIRCUIT, USED ONLY WHEN CHANNEL 13 IS USED IN 4-WIRE MODE.

9. TRANSFORMERS ARE 600:600, LM9003.
8. ALB AUDIO LISTEN BALANCE AND ALF AUDIO LISTEN FEED GO TO LISTEN SWITCHING AREA OF MOTHERBOARD S601-S612. PAGE 6.
7. LTX-13,14,15 ARE SPARE INPUTS.
6. LTX-1 – LTX-6 CALLOUTS CONNECT TO CALL LIGHT P.C.B., TRANSMITTER CHANNELS 1-6, SHEET 18.
5. U201-U209, U214 ARE NE5532N.
4. —▷|— : SCHOTTKY DIODE, VF = 0.1 TO 0.3 V
3. CUTTABLE TRACES (USED FOR OPTIONS) ARE SHOWN: ///
2. CAP. VALUES ARE SHOWN: MICROFARADS / VOLTS.
1. ALL RESISTORS ARE CARBON FILM, 1/4 WATT, ±5%

NOTES: UNLESS OTHERWISE SPECIFIED

USED ON THIS PAGE: C210-C216, C221-C226, C230-C236, C240-C246, C250-C256, C260-C266, C270-C276, C280-C284, C291-C296, R201A-R201D, R210A-R210F, R211-R219, R221-R229, R231-R239, R241-R249, R251-R259, R261-R269, R271-R279, R281-R289, J2, J51, J200, J202, J210, J211 (J161)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX± .XXX± ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN R. NEILSON	1-27-86
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION MODEL 802, 802A, TALK SW, BILATERAL CURRENT SOURCES CH 1-6, 13, 14, 15

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. L | SCALE | SHEET 8 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REDRAWN	10-15-82	
	B	REVISED & REDRAWN B.MAES	2/14/83	SLH
	C	REVISED PER ECO #919 B.MAES	4-7-83	
	D	REVISED PER ECO #1030 B.MAES	6-24-83	
	E	REVISED PER ECO 1397	1-18-85	
	F	ADDED NOTE 4. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-85	
	G	DELETED W2 ECO # 2133	2-16-88	
	H	PER ECO # 2391	2-10-89	

4. SEE SHEET 10 FOR DESTINATION OF CONNECTORS J300, J310, J316, J317, J318. SEE SHEET 21 FOR CONNECTORS J300, J303, J304, J305, J308, J309, J310, J318.

3 R371 & R372 USED ON SQUAWK OPTION P.C.B #2 (SQUAWK 7-10) ONLY (USED FOR MORE THAN 6 CHANNELS OF SQUAWK); FOR TERMINATION OF UNUSED BILATERAL CURRENT SOURCES.

2. D311-D316, D321-D336 ARE 1 AMP, 30V SCHOTTKY DIODES; EX. INT. RECT. PN 11DQ03.

1 FOR SQUAWK OPTION, SET SQUAWK LISTEN CH. SELECT SWITCH (S309) AS DESCRIBED: TALK/SQUAWK P.C.B. #1 CONTAINS LISTEN TAPS 1-6; TALK/SQUAWK P.C.B #2 CONTAINS LISTEN TAPS 7-10. TO ASSIGN SQUAWK POSITION, SET S309 ON THE P.C.B. THAT CONTAINS THE PROPER LISTEN TAP, TO THAT LISTEN TAP. SET S309 ON THE P.C.B THAT DOES NOT HAVE THE DESIRED LISTEN TAP TO SWITCH POSITION 7, 8, 9, OR 10 (NOT CONNECTED). FOR EXAMPLE: FOR SQUAWK 8, S309 ON P.C.B. #1 IS SET TO POSITION 7, 8, 9, OR 10. S309 ON P.C.B. #2 IS SET TO POSITION 2 (LT8)

NOTES: UNLESS OTHERWISE SPECIFIED

USED ON THIS PAGE: C310-C316, C320-C326, C331-C336, C341-C346, C351-C356, C361-C367, D311-D316, D321-D336, E301-E307, J300A, J300B, J303, J304A, J304B, J305, J306, J308, J309, J310, J316-J318, R310-R370, T311, T321, T331, T341, T351, T361, U301-U308.

AS3000-3	802A
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	10-14-82
CHECKED	
ISSUED	2/14/83

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM-MASTER STATION - MODEL 802, 802A, TALK/SQUAWK OPTION BD

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. H | SCALE — | SHEET 9 OF 26

Arch • Eng. Supply Co. 357-8881

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	C	REVISED & REDRAWN PER ECO# 919	4-7-83	
	D	ADDED NOTE 2. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS/CHANGES.	7-10-86	
	E	DELETED W2 ECO# 2133	2-17-88	
	F	PER ECO # 2391	2-10-89	

TALK/SQUAWK OPTION P.C.B
SHEET 9

(REAR PANEL)
LINE CONNECTOR
J101 SHEET 20

		P310	J310	
7	BALANCED AUDIO, CH.7	1	1	T311
32	BALANCED AUDIO, CH.7	2	2	
8	BALANCED AUDIO, CH.8	3	3	T321
33	BALANCED AUDIO, CH.8	4	4	
9	BALANCED AUDIO, CH.9	5	5	T331
34	BALANCED AUDIO, CH.9	6	6	
10	BALANCED AUDIO, CH.10	7	7	T341
35	BALANCED AUDIO, CH.10	8	8	
11	BALANCED AUDIO, CH.11	9	9	T351
36	BALANCED AUDIO, CH.11	10	10	
12	BALANCED AUDIO, CH.12	11	11	T361
37	BALANCED AUDIO, CH.12	12	12	
N.C.		13	13	N.C.
N.C.		14	14	N.C.

	J300A	P300A		P409	J409
	1	1	GND	1	1
	2	2	TALK GATE # 7	2	2
	3	3	TALK GATE # 8	3	3
	4	4	TALK GATE # 9	4	4
	5	5	TALK GATE #10	5	5
	6	6	TALK GATE #11	6	6
	7	7	TALK GATE #12	7	7
N.C.	8	8		8	8
N.C.	9	9		9	9
	10	10	GND	10	10

PIO BOARD # 2
SHEET 13

	J317	P317		P617	J617	
	1	1	AUDIO LISTEN FEED 12	1	1	
	2	2	AUDIO LISTEN BALANCE 12	2	2	
	3	3	AUDIO LISTEN FEED 11	3	3	
	4	4	AUDIO LISTEN BALANCE 11	4	4	
	5	5	AUDIO LISTEN FEED 10	5	5	
	6	6	AUDIO LISTEN BALANCE 10	6	6	
	7	7	AUDIO LISTEN FEED 9	7	7	
	8	8	AUDIO LISTEN BALANCE 9	8	8	
	9	9	AUDIO LISTEN FEED 8	9	9	
	10	10	AUDIO LISTEN BALANCE 8	10	10	
	11	11	AUDIO LISTEN FEED 7	11	11	
	12	12	AUDIO LISTEN BALANCE 7	12	12	
N.C.	13	13		13	13	N.C.
N.C.	14	14		14	14	N.C.

MOTHER BOARD
SHEETS 6 & 19

	J318	P318		P50	J50	
	1	1	GND	1	1	
	2	2	SQUAWK HI	2	2	
	3	3	GND	3	3	
	4	4	GND	4	4	
	5	5	+12V	5	5	
	6	6	+12V	6	6	
	7	7	+6V	7	7	
	8	8	+6V	8	8	
	9	9	USD	9	9	USM
TALK BUS	10	10	TSD	10	10	

J316 1 2 3 4 5 6 7 8 9 10

P316 1 2 3 4 5 6 7 8 9 10

LTX12 LTX11 LTX10 LTX9 LTX8 LTX7

P1804 1 2 3 4 5 6 7 8 9 10

J1804 1 2 3 4 5 6 7 8 9 10

CALL LIGHT OPTION
P.C.B. # 2, CH. 7-12.
SHEET 18

2. SEE ALSO SHEET 21 FOR SQUAWK CONNECTIONS.
1. N.C. = NO CONNECTION
NOTE: (UNLESS OTHERWISE SPECIFIED)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

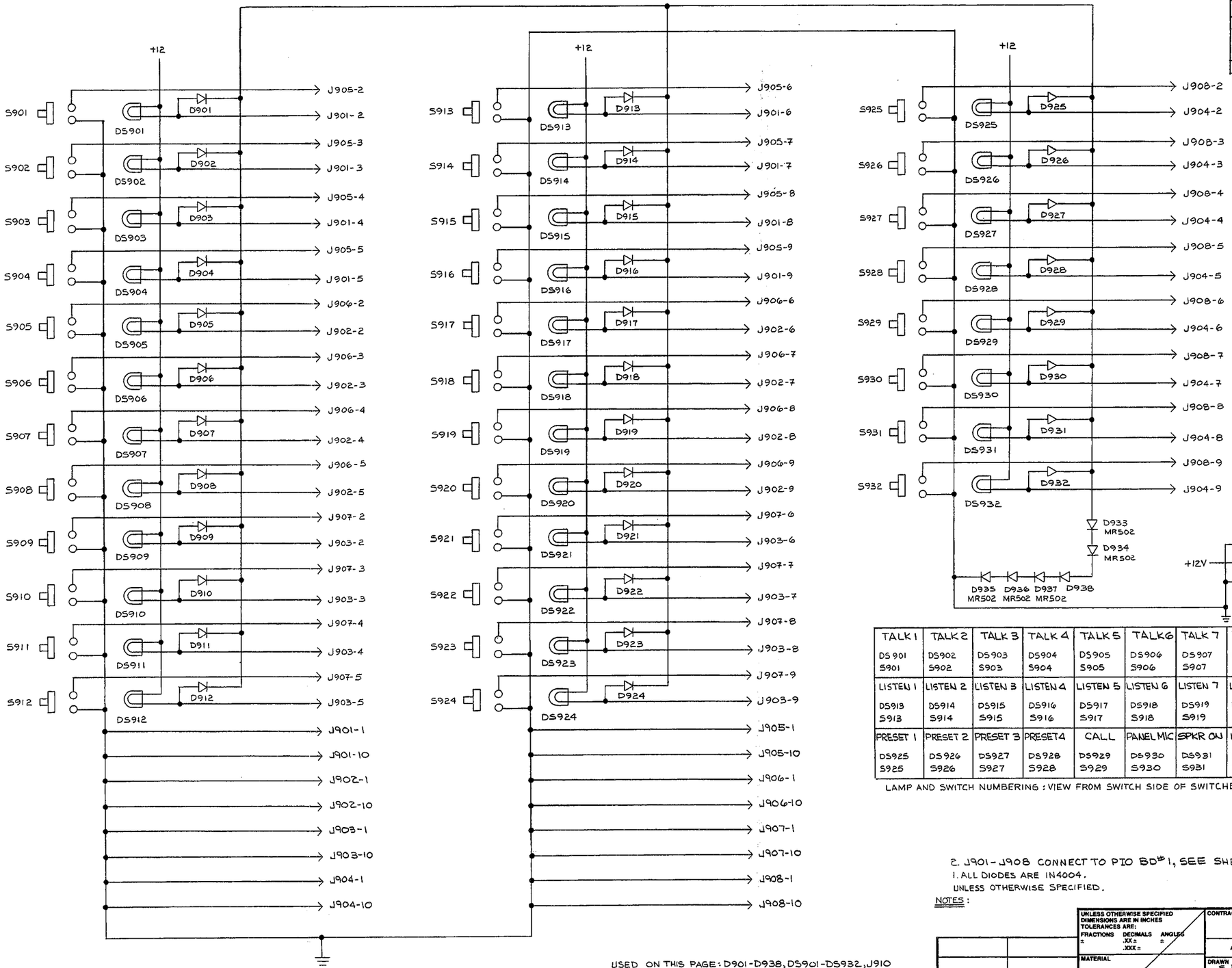
APPROVALS	DATE
DRAWN B. MAEZ	4-7-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM-TALK OPTION (TALK CHANNELS 7-12) INTERCONNECT

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. F
SCALE | SHEET 10 of 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	UPDATED	10-28-82	
	B	REV. PER ECO# 997 B.MABE	6-14-83	
	C	ADDED INTERSHEET REFERENCE FOR CLARITY, SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES.	7-10-86	
	D	PER ECO # 2391	2-10-89	



TALK 1	TALK 2	TALK 3	TALK 4	TALK 5	TALK 6	TALK 7	TALK 8	TALK 9	TALK 10	TALK 11	TALK 12
DS 901 S901	DS902 S902	DS903 S903	DS904 S904	DS905 S905	DS906 S906	DS907 S907	DS908 S908	DS909 S909	DS910 S910	DS911 S911	DS912 S912
LISTEN 1	LISTEN 2	LISTEN 3	LISTEN 4	LISTEN 5	LISTEN 6	LISTEN 7	LISTEN 8	LISTEN 9	LISTEN 10	LISTEN 11	LISTEN 12
DS913 S913	DS914 S914	DS915 S915	DS916 S916	DS917 S917	DS918 S918	DS919 S919	DS920 S920	DS921 S921	DS922 S922	DS923 S923	DS924 S924
PRESET 1	PRESET 2	PRESET 3	PRESET 4	CALL	PANEL MIC	SPKR ON	MIC ON				
DS925 S925	DS926 S926	DS927 S927	DS928 S928	DS929 S929	DS930 S930	DS931 S931	DS932 S932				

LAMP AND SWITCH NUMBERING : VIEW FROM SWITCH SIDE OF SWITCHBOARD

J901 TO J406
J902 TO J407
J903 TO J408
J904 TO J409
J905 TO J401
J906 TO J402
J907 TO J403
J908 TO J404

2. J901-J908 CONNECT TO PIO BD# 1, SEE SHEET 12.
1. ALL DIODES ARE IN4004.
UNLESS OTHERWISE SPECIFIED.

NOTES:

USED ON THIS PAGE: D901-D938, DS901-DS932, J910
S901-S932, J901-J908

NEXT ASSY	USED ON		
APPLICATION			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	5-8-82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION, MODEL 802, 802A,
(SWITCHBOARD)

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. D
SCALE — | SHEET 11 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED AND REDRAWN	9-24-82	
	B	UPDATED	10-21-82	
	C	CHANGED 74C14 TO 74C04	12-9-82	
	D	REV PER ECO# 997 MAR2	6-14-83	
	E	REV PER ECO # 1114 LB	10-13-83	
	F	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	G	CHANGED NOTE 1 WAS -C469 ECO 1907	5-1-87	
	H	PER ECO # 2391	2-10-89	

J405: GND 1, DIØ 2, SQUAWK ENABLE, SW1 DI1 3, SQUAWK POSIT SW2 DI2 4, SQUAWK POSIT SW3 DI3 5, BASE: CALL/SET UP DI4 6, DI5 7, SQUAWK TALLY 9 DI6 8, SQUAWK TALLY 10 DI7 9, GND 10

J404: GND 1, PRESET 1, S925 DIØ 2, PRESET 2, S926 DI1 3, PRESET 3, S927 DI2 4, PRESET 4, S928 DI3 5, CALL/SET UP S929 DI4 6, PANEL MIC S930 DI5 7, SPKR ON S931 DI6 8, MIC ON S932 DI7 9, GND 10

J403: GND 1, TALK 9, S909 DIØ 2, TALK 10, S910 DI1 3, TALK 11, S911 DI2 4, TALK 12, S912 DI3 5, LISTEN 9, S921 DI4 6, LISTEN 10, S922 DI5 7, LISTEN 11, S923 DI6 8, LISTEN 12, S924 DI7 9, GND 10

J402: GND 1, TALK 5, S905 DIØ 2, TALK 6, S906 DI1 3, TALK 7, S907 DI2 4, TALK 8, S908 DI3 5, LISTEN 5, S917 DI4 6, LISTEN 6, S918 DI5 7, LISTEN 7, S919 DI6 8, LISTEN 8, S920 DI7 9, GND 10

J401: GND 1, TALK 1, S901 DIØ 2, TALK 2, S902 DI1 3, TALK 3, S903 DI2 4, TALK 4, S904 DI3 5, LISTEN 1, S913 DI4 6, LISTEN 2, S914 DI5 7, LISTEN 3, S915 DI6 8, LISTEN 4, S916 DI7 9, GND 10

R401A-J 22KΩ, R402A-H 1MΩ, C401–C408
R403A-J 22KΩ, R404A-H 1MΩ, C409–C416
R405A-J 22KΩ, R406A-H 1MΩ, C417–C424
R407A-J 22KΩ, R408A-H 1MΩ, C425–C432
R409A-J 22KΩ, R410A-H 1MΩ, C433–C440

U401, U402, U403, U404, U405, U406, U407: 74C04
U408, U409, U410, U411, U412: 74HC240
R4, R3, R2, R1, RØ

J406: GND 1, TALK 1, DS901 DOØ 2, TALK 2, DS902 DO1 3, TALK 3, DS903 DO2 4, TALK 4, DS904 DO3 5, LISTEN 1, DS913 DO4 6, LISTEN 2, DS914 DO5 7, LISTEN 3, DS915 DO6 8, LISTEN 4, DS916 DO7 9, GND 10

J407: GND 1, TALK 5, DS905 DOØ 2, TALK 6, DS906 DO1 3, TALK 7, DS907 DO2 4, TALK 8, DS908 DO3 5, LISTEN 5, DS917 DO4 6, LISTEN 6, DS918 DO5 7, LISTEN 7, DS919 DO6 8, LISTEN 8, DS920 DO7 9, GND 10

J408: GND 1, TALK 9, DS909 DOØ 2, TALK 10, DS910 DO1 3, TALK 11, DS911 DO2 4, TALK 12, DS912 DO3 5, LISTEN 9, DS921 DO4 6, LISTEN 10, DS922 DO5 7, LISTEN 11, DS923 DO6 8, LISTEN 12, DS924 DO7 9, GND 10

J409: GND 1, PRESET 1, DS925 DOØ 2, PRESET 2, DS926 DO1 3, PRESET 3, DS927 DO2 4, PRESET 4, DS928 DO3 5, CALL DS929 DO4 6, PNL MIC DS930 DO5 7, SPKR ON DS931 DO6 8, MIC ON DS932 DO7 9, GND 10

J410: GND 1, MSE J2-2 DOØ 2, PME J2-3 DO1 3, HME J2-4 DO2 4, SES J2-5 DO3 5, SPE J2-6 DO4 6, SPD J2-7 DO5 7, ISO TALK DO6 8, ISO LISTEN DO7 9, GND 10

J411: GND 1, STATUS LED *1 DOØ 2, *2 DO1 3, *3 DO2 4, *4 DO3 5, *5 DO4 6, *6 DO5 7, *7 DO6 8, *8 DO7 9, GND 10

ADJ BOARD TO J705 SHEET 7

U413, U414, U415, U416, U417, U418, U419: ULN2004 / MC1416

U420, U421, U422, U423, U424, U425: 74HC373 (WØ, W1, W2, W3, W4, W5)

J412 TO J2 CPU SHEET 15 ZONE B5: GND 1, DOØ 2, DO1 3, DO2 4, DO3 5, DO4 6, DO5 7, DO6 8, DO7 9, GND 10

J413 TO J3 CPU SHEET 15 ZONE B3: GND 1, DIØ 2, DI1 3, DI2 4, DI3 5, DI4 6, DI5 7, DI6 8, DI7 9, GND 10

TO J4 CPU SHEET 15 ZONE C2 — J414: RD 1, WR 2, A2 3, A1 4, A0 5

READ ADDRESS DECODER: U427 (RØ, R1, R2, R3, R4, EN, A2, A1, A0) 74PC138

WRITE ADDRESS DECODER: U426 74HC240 (WØ, W1, W2, W3, W4, W5); U428 74PC138 (WR, A2, A1, A0); W1 DEV 0, W2 DEV 1, W3 DEV 2, W4 DEV 3

J415 TO J127 SHEET 16: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; R411 .5Ω 1/2W +5

DEVICE ADDRESS JUMPER BOARD FUNCTION IS DETERMINED BY JUMPER LOCATION I.E. PIO#1 = W1

2. C401–C440 ARE .01μF/50V MONO. CERAMIC CAPACITORS FOR DEBOUNCING.
1. C441–C460 ARE .1μF/50V MONO. CERAMIC CAPACITORS USED TO BYPASS EACH I.C.

NOTES: (UNLESS OTHERWISE SPECIFIED)

USED ON THIS PAGE: C401–C440, J401–J415, R401–R411, U401–U428

AS3000-4	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	9-24-82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION MODEL 802, 802A,
PIO#1, I/O BOARD

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. H

SCALE | SHEET 12 OF 26

Arch - Eng. Supply Co. 307-0001

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED AND REDRAWN	9-24-82	
	B	UPDATED	10-21-82	
	C	CHANGED R406A-H, WAS 1 MΩ	11-23-82	
	D	CHANGED 74C14 TO 74C04	12-9-82	
	E	REV PER ECO# 997 MAREE	6-14-83	
	F	REV PER ECO# 1114 LB	10-13-83	
	G	ADDED KEYS TO PINS 6 & 9 OF J411 GM	10-9-84	
	H	ADDED INTER$HEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	J	CHNG MOTHERBD DIP SW FUNTION CALLOUTS RB	9-12-86	
	K	REV J401 & J402 PIN FUNCTION CALLOUTS	9-26-86	
	L	CHANGED NOTE 1 WAS -C469 ECO 1907	5-1-87	
	M	PER ECO# 2391	2-10-89	

TO J313 SHEET 24 ZONE B1 — J405 — R401A-J 22KΩ R402A-H 1MΩ — +5V

IFB#2, TALLY 5 / , TALLY 6 / , TALLY 7 / , TALLY 8 / IFB#2, SA2

GND 1, DIØ 2, DI1 3, DI2 4, DI3 5, DI4 6, DI5 7, DI6 8, DI7 9, GND 10

C401 C402 C403 C404 C405 C406 C407 C408

U401 74C04 — U408 74HC240 — DIØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 — R4

TO MOTHER BOARD J5 — J404 — R403A-J 22KΩ R404A-H 1MΩ

GND 1, DIØ 2, DI1 3, DI2 4, DI3 5, DI4 6, DI5 7, DI6 8, DI7 9, GND 10

C409 C410 C411 C412 C413 C414 C415 C416

HDS FOOT SWITCH EXTERNAL PRESET 4 ISO ENABLE

U402 74C04 — U409 74HC240 — DIØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 — R3

TO CPU J5 SHEET 15 ZONE A2 — J403 — R405A-J 22KΩ R406A-H 1K

CPU TIMER: GND 1, T1 DIØ 2, T2 DI1 3, T3 DI2 4, T4 DI3 5, T5 DI4 6, T6 DI5 7, T7 DI6 8, T8 DI7 9, GND 10

C417 C418 C419 C420 C421 C422 C423 C424

U403 74C04 — U410 74HC240 — DIØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 — R2

TO J128 SHEET 16 ZONE C3 — J402 — R407A-J 22KΩ R408A-H 1MΩ

MOTHER BOARD: GND 1, 1 DIØ 2, 2 DI1 3, 3 DI2 4, 4 DI3 5, 5 DI4 6, 6 DI5 7, 7 DI6 8, 8 DI7 9, GND 10

SEE CURRENT TDP 3510

C425 C426 C427 C428 C429 C430 C431 C432

U404 74C04 — U411 74HC240 — DIØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 — R1

TO J705 SHEET 7 ZONE D3 — J401 — R409A-J 22KΩ R410A-H 1MΩ

ADJUSTMENT BD.: GND 1, 1 DIØ 2, 2 DI1 3, 3 DI2 4, 4 DI3 5, 5 DI4 6, 6 DI5 7, 7 DI6 8, 8 DI7 9, GND 10

SEE CURRENT TDP 3510

C433 C434 C435 C436 C437 C438 C439 C440

U405 74C04 — U412 74HC240 — DIØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 — R0

+5V

U406 74C04

U407 74C04

TO J621 SHEET 6 — J406

LISTEN GATE 1, LISTEN 2, LISTEN 3, LISTEN 4, LISTEN 5, LISTEN 6, LISTEN 7, LISTEN GATE 8

TO J622 SHEET 6 — J407

LISTEN GATE 9, LISTEN 10, LISTEN 11, LISTEN 12, LISTEN 13, LISTEN 14, LISTEN 15, LISTEN GATE 16

TO J200 SHEET 8 — J408

TALK GATE 13, TALK 14, TALK 1, TALK 2, TALK 3, TALK 4, TALK 5, TALK GATE 6

TO J300A SHEETS 9,10 — J409

TALK GATE 7, TALK 8, TALK 9, TALK 10, TALK 11, TALK GATE 12

TO J221 SHEET 20 — J410

KEY, 1, 2, 3, 4, 5, 6, 7, 8

TO J223 SHEET 20 — J411

KEY, 9, 10, 11, 12, GLOBAL RESET TALLY, CLE, CTE, GLOBAL RESET KEY

U413 U414 U415 U416 U417 U418 U419 ULN2004 MC1416

U420 U421 U422 U423 U424 U425 74HC373 LE OE — +5 — DØ DI1 DI2 DI3 DI4 DI5 DI6 DI7

W0 W1 W2 W3 W4 W5

J412 TO J2 CPU SHEET 15 — GND DØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 GND 1–10

J413 TO J3 CPU SHEET 15 — GND DØ DI1 DI2 DI3 DI4 DI5 DI6 DI7 GND 1–10

READ ADDRESS DECODER — U427 — RØ R1 R2 R3 R4 — EN — +5V — A2 A1 A0 — 74PC138 — RD — J414 — TO J4 CPU SHEET 15

U426 74HC240 — W0 W1 W2 W3 W4 W5

U428 74PC138 — WR — A2 A1 A0

WRITE ADDRESS DECODER — W1 W2 W3 W4 — DEV0 DEV1 DEV2 DEV3

J415 — TO J127 SHEET 16

R411 .5Ω 1/2W +5

DEVICE ADDRESS JUMPER BOARD FUNCTION IS DETERMINED BY JUMPER LOCATION I.E.: PIO #2 = W2

2. C401-C440 ARE .01μF/50V MONO. CERAMIC CAPACITORS FOR DEBOUNCING.
1. C441-C460 ARE .1μF/50V MONO. CERAMIC CAPACITORS USED TO BYPASS EACH I.C.

NOTES: (UNLESS OTHERWISE SPECIFIED)

USED ON THIS PAGE: C401-C440, J401-J415, R401-R411, U401-U428

AS3000-4	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	9-24-82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION MODEL 802, 802A,
PIO #2 I/O BOARD

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. M

SCALE | SHEET 13 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED AND REDRAWN	9-24-82	
	B	UPDATED	10-21-82	
	C	CHANGED 74C14 TO 74C04	12-9-82	
	D	REV PER ECO# 997		
	E	REV PER ECO # 1114 LB	10-13-83	
	F	ADDED GLOBAL RE. KEY ON PIN 9, J405	11-9-84	
	G	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES. ADDED NOTES 3 & 4	7-10-86	
	H	CHANGED NOTE 1 WAS -C469 ECO 1907	5-1-87	
	J	PER ECO # 2391	2-10-89	

TO J54 SHEETS 23,26

J405 — ISO TALLY IN #1 DI0, #2 DI1, #3 DI2, #4 DI3, ISO TALLY IN #5 DI4, #6 DI5, DI6, GLOBAL RESET KEY DI7, GND

R401 A-J 22KΩ, R402 A-H 1MΩ, C401–C408

U401, U402, U403, U404 (74C04) → U408, U409, U410, U411, U412 (74HC240) → DI0–DI7 → R4, R3, R2, R1, R0

TO J1801 4 — J404 — CALL LIGHT RX KEY #7–#12, RX KEY #12, BLINK GATE OUT, CALL LIGHT BOARD DETECT

R403A-J 22KΩ, R404 A-H 1MΩ, C409–C416

TO J1801 3 — J403 — CALL LIGHT RX KEY #1–#6, RX KEY #6, BLINK GATE OUT, CALL LIGHT BOARD DETECT

R405A-J 22KΩ, R406A-H 1MΩ, C417–C424

TO J313 SHEET 24 — J402 — IFB #1, TALLY #1–#4, IFB #1, TALLY #4, IFB #1, SA1

R407A-J 22KΩ, R408 A-H 1MΩ, C425–C432

TO J308 SHEET 21 — J401 — SQUAWK TALLY #1–#8

R409A-J 22KΩ, R410 A-H 1MΩ, C433–C440

+5V

TO J1803 3 — J406 — CALL LIGHT TX KEY #1–#6, TX KEY #6, BLINK GATE IN

TO J1803 4 — J407 — CALL LIGHT TX KEY #7–#12, TX KEY #12, BLINK GATE IN

TO J312 SHEET 24 ZONE B6 — J408 — IFB #1, KEY #1–#3, IFB #1, KEY #4, IFB #1, SA1

TO J312 SHEET 24 ZONE B2 — J409 — IFB #2, KEY #5–#8, IFB #2, SA2

TO J306 SHEET 21 J32 SHEETS 23,26 — J410 — ISO KEY #1–#6, SQUAWK KEY #9, SQUAWK KEY #10

TO J300A SHEET 21 — J411 — SQUAWK KEY #1–#8

U413–U419 (ULN2004 / MC1416) → U420–U425 (74HC373 LE, OE) → WO, W1, W2, W3, W4, W5

J412 — TO J2 CPU SHEET 15 ZONE B5

J413 — TO J3 CPU SHEET 15 ZONE B5

READ ADDRESS DECODER — U427 (EN, +5V) → RD → J414 TO J4 CPU SHEET 15

U426 (74HC240), U428 (74PC138) → WR, A2, A1, A0

WRITE ADDRESS DECODER — W1 DEV0, W2 DEV1, W3 DEV2, W4 DEV3

J415 — TO J127 SHEET 16 — R411 .5Ω 1/2W +5

DEVICE ADDRESS JUMPER
BOARD FUNCTION IS DETERMINED BY JUMPER LOCATION
I.E. PIO #3 = W3

4 TO CALL LIGHT P.C.B. #2 SHEET 18.

3 TO CALL LIGHT P.C.B. #1 SHEET 18.

2. C401–C440 ARE .01μF/50V MONO. CERAMIC CAPACITORS FOR DEBOUNCING.

1. C441–C460 ARE .1μF/50V MONO. CERAMIC CAPACITORS USED TO BYPASS EACH I.C.

NOTES: (UNLESS OTHERWISE SPECIFIED)

USED ON THIS PAGE: C401–C440, J401–J415, R401–R411, U401–U428

AS3000-4	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± — DECIMALS .XX ± .XXX ± — ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	9-24-82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION MODEL 802, 802A,
PIO #3, I/O BOARD

SIZE	FSCM NO.	DWG. NO.	REV.
D	60572	SD 3000	J

SCALE — SHEET 14 OF 26

Arch - Eng. Sunny Co. 387-9881

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED & REDRAWN	10-6-82	
	B	UPDATED	10-28-82	
	C	DELETE D2,U10,U24	11-15-82	
	D	NOTE 5 DELETED AT U14 ONLY; ADDED R14A-I; U16 WAS 27C16; ADDED C17,C18; C6 WAS 150/16V TANT.	11-23-82	
	E	UPDATED	12-29-82	
	F	D3 WAS IN5818 MV	8-3-83	
	G	REVISED J6 PER ECO 1105 DM	9-26-83	
	H	REVISED DT PER ECO 1340 MW	10-25-84	
	J	REVISED PER ECO 1408	1-21-85	
	K	CORRECTED VALUE @ C9 PER ECO 1577 MW	1-15-86	
	L	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	M	REVISED PER ECO#1936	7-15-87	
	N	REVISED PER ECO#2391	1-23-89	

CLOCK
C2 22pF
Y1 CX 4MHz
C3 47pF
R6 1 MEG.
XIN XOUT

HIGH ORDER ADDRESS BUFFER
U5

MEMORY PROM
U12 27C16 MS0
U13 27C16 MS1
U14 27C16 MS2
U15 27C16 MS3

MEMORY RAM
U16 6116 MS4

R4B 22K WAIT RQ
R4D 22K BUS RQ
R4E 22K BUSAK
R4I 22K SØ
R4H 22K REFRESH
R4G 22K S1
R4F 22K INTAK
R4C 22K INTRQ
R5 22K NMIRQ
C20 .1/50

U2 NSC800 CPU
WAIT
BREQ
BACK
SØ
REFRESH
S1
INTA
INTR
NMI
RSTA
RSTB
RSTC
IO/M
ALE
RSTIN
RD
RESET OUT
WR
CLK
GND

ADDRESS LATCH
U8 82PC12

OUTPUT BUFFER
U6

INPUT BUFFER
U7

TO J412 SHEETS 12,13,14 J152 SHEET 17
DATA OUT BUS

TO J413 SHEETS 12,13,14
DATA IN BUS

J7
C1 1/35 TANT
R3 100K
R1 100K
R2 100K
D1 IN914
Q1 2N5210
RSTSW

RESET SW (ON ADJ. BOARD)
R13 100
R12 200
D7 IN746A
Q3 MPS 4355
D8 IN6263
R11 10K
C5 .1/50
R4A 22K

R7 22K

D3 11DQ03
C4 .1/50
D4 IN6263
B1 3.6VDC BATTERY 6E41B901 CD18-1
R8 470Ω Q2
D5 IN4004

R9 22K
U25 4016
R10 10K

TO J414 SHEETS 12,13,14 J151 SHEET 17

U9 74PC138
DV0 3800H DEV 0
DV1 3808H DEV 1
DV2 3810H DEV 2
DV3 3818H DEV 3
U23 BCLK

J6
DV7 UART
DV RD

U23 74PC02

J1 POWER IN
TO J127 SHEET 16

J8 POWER LOOP THROUGH

U11 74PC138
MS0 00H 0
MS1 800H 2K
MS2 1000H 4K
MS3 1800H 6K
MS4 2000H 8K
MS7 2800H 3000H 3800H 14K

U20 4040B
TO J403 SHEET 13
J5
2KHz

U20 DATA

IN/OUT	PIN	PERIOD
QØ	10	0.50 ms
Q1	9	1.00
Q2	7	2.05
Q3	6	4.10
Q4	5	8.20
Q5	3	16.40
Q6	2	32.80
Q7	4	65.60
Q8	13	131.20
Q9	12	261.00
Q10	14	523.00
Q11	15	1046.00
Q12	1	2192.00 ms

C17 150/16 TANT
C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 .1/50
C18 .1/50

Y1 - 4.0MHz

	NO. OF PINS	PIN # +5V	PIN # GND
U2 - NSC800N	40	40	20
U3 - 74PC00	14	14	7
U4 - 74PC04	14	14	7
U5-U7 - 82PC08	20	20	10
U8 - 82PC12	24	24	12
U9 - U11 - 74PC138	16	16	8
U12 - U15 - 27C16	24	24	12
U19, U20 - CD4040	16	16	8
U23 - 74PC02	14	14	7
U16 - 6116	24	24	12

6. THIS CPU SCHEMATIC IS USED ONLY FOR THE MODEL 802. SEE SD5336 FOR THE MODEL 802A CPU.
(5) FOR FUTURE USE
4. C7-C16 ARE 0.1/50V MONO CAPS.
3. WHERE PROMS ARE USED JUMPER PIN 21 TO +5V
2. WHERE RAMS ARE USED JUMPER PIN 21 TO WR
1. INITAL BOARD POPULATION
WILL BE 2 PROMS - 27C16
1 RAM - 6116
2 SPARE
NOTES: UNLESS OTHERWISE SPECIFIED

A15	A14	A13	A12	A11			
				0	0	0000H	PROM 1
				1	2048	0800H	PROM 2
		1	0		4096	1000H	PROM 3
		1	1		6144	1800H	PROM 4
	1	0	0		8192	2000H	MEM -
	1	0	1		10240	2800H	X
	1	1	0		12288	3000H	X
	1	1	1		14336	3800H	DEV

LAST USED: C18, D8, J8, Q3, R14, U25
NOT USED: D2, D6, U1, U10, U17, U18, U21, U22, U24

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING

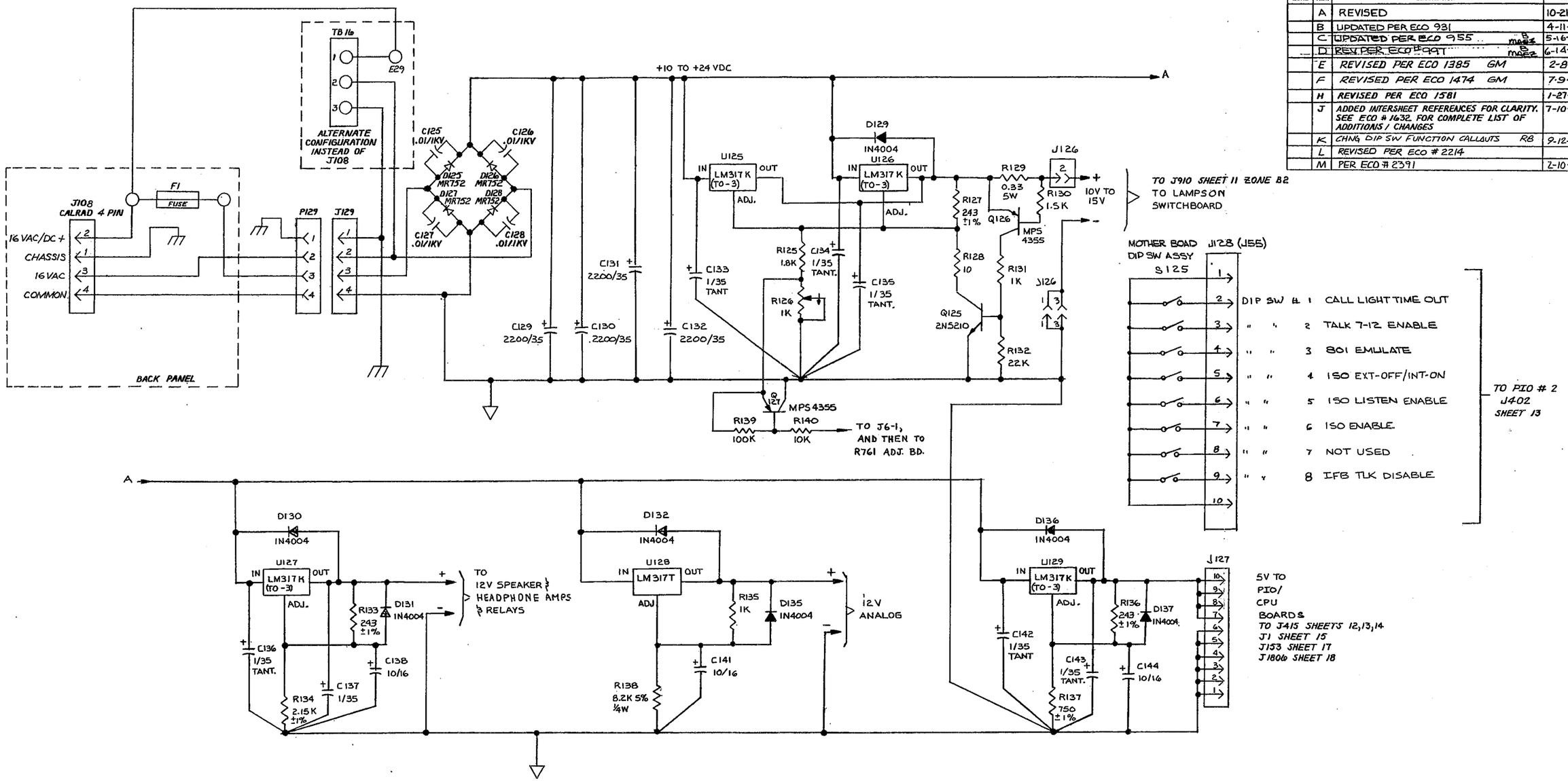
CONTRACT NO. SERIES 800
APPROVALS | DATE
DRAWN S.DUEBBER 10-6-82
CHECKED
ISSUED

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION, MODEL 802,
(PROCESSOR / CPU)

SIZE D | FSCM NO. 60512 | DWG. NO. SD3000 | REV. N
SCALE — | SHEET 15 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED	10-21-82	
	B	UPDATED PER ECO 931	4-11-83	
	C	UPDATED PER ECO 955 mass B mass2	5-16-83	
	D	REV PER ECO 997 mass B mass2	6-14-83	
	E	REVISED PER ECO 1385 GM	2-8-85	
	F	REVISED PER ECO 1474 GM	7-9-85	
	H	REVISED PER ECO 1581	1-27-86	
	J	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	K	CHNG DIP SW FUNCTION CALLOUTS RB	9-12-86	
	L	REVISED PER ECO # 2214		
	M	PER ECO # 2391	2-10-89	



SEE SHEET 4 ZONE A5 FOR 6 VOLT REGULATOR

USED ON THIS PAGE :
C125-C138, C140-C144, D125-D133, D135-D137, E25-E28, F1, F2
Q125-Q127, R125-R140, TB16, U125-U129

NOT USED :
C139, C140, D133, D134

LAST USED :
C144, D137, E28, F2, Q127, R140, TB16, U129

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN R. NEILSON	1-27-86
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION, MODEL 802, 802A, POWER SUPPLY

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. M
SCALE — | SHEET 16 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED	10-18-82	
	B	UPDATED	10-28-82	
	C	ADDED JUMPER ON W158	12-9-82	
	D	REV PER ECO# 997 MAB	6-14-83	
	E	REV PER ECO #1113 LB	10-11-83	
	F	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	G	REVISED PER ECO # 2391	1-23-89	

FROM DIGITAL ADDRESS BUS *TO J4 SHEET 15*

FROM DIGITAL DATA OUT BUS *TO J2 SHEET 15*

FROM DIGITAL POWER BUS *TO J127 SHEET 16*

J151 · BCLK · WR · DEV3 · A2 · A1 · A0

U150 ADDRESS DECODER 74HC138 · W158 · W157 · W156 · W155 · W154 · W153 · W152 · W151

U152 74HC00 · 2 MHz

R150 2.7K · J5 CHIME READY *TO J404 SHEET 13*

J152 · U151 DATA LATCH 74HC373 · (LSB) · (MSB)

U153 PROGRAMMABLE SOUND GENERATOR · SN76489A · CE · WE · READY

2 MODEL 802A ONLY · U153 SOCKET · P1153 16-PIN DIP · PIO · N.C. · N.C. · TO J10 OF 802A CPU (SD5336)

AUDIO OUT + · C154 10/16 · R151 10 · C155 .1/50 · R152 2.2K · R153 2.2K · J4-5 TO J709-5 *SHEET 5 ZONE D4* · C157 .1/50 · C156 .1/50 · R154 2.2K

U154 3 · R157 100K · RBX *(SHT 4) ZONE B3* · R156 22K · C158 .1/50 · CD4053BE · J223-8

TO PIO #2 *SHEET 13* J411-8 CHIME TALK KEY (*SEE SHEET 20 ZONE A4*)

J153 · C150 .1/50 · C151 .1/50 · C152 .1/50 · C153 .1/50 · BY PASS CAPACITORS

1 CHIME OPTION, MODEL 802 ONLY

3 U154 IS STANDARD ON THE MODEL 802A. U154 IS USED ON THE 802 ONLY WHEN THE CHIME OPTION IS INSTALLED.

2 CABLE SHOWN WITHIN THESE DASHED LINES IS STANDARD ON THE MODEL 802A ONLY (NOT USED ON THE MODEL 802). P1153 PLUGS INTO THE U153 SOCKET (U153 IS NOT USED).

1 PARTS SHOWN WITHIN THESE DASHED LINES ARE USED ONLY IN THE MODEL 802 WITH THE CHIME OPTION INSTALLED. THESE PARTS ARE NOT ACTIVE IN THE MODEL 802A. THE CHIME OPTION ON THE 802A IS FOUND ON THE CPU BOARD (*SEE SD5336*).

NOTES :

USED ON THIS PAGE: C150-C157, J151-J154, U150-U152, U154, R150-R154, R156, R157

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± · DECIMALS .XX ± .XXX ± · ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN STAN HUBLER	6/30/82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION, *MODELS 802 & 802A* MOTHER BOARD (CHIME OPTION)

SIZE D · FSCM NO. 60572 · DWG. NO. SD 3000 · REV. G · SCALE · SHEET 17 OF 26

Arch - Eng. Supply Co. 367-9091

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	UPDATED	9-22-82	
	B	UPDATED	9-24-82	
	C	UPDATED	10-28-82	
	D	ADDED R1871A-R1871F	12-17-82	
	E	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1432 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	F	CHANGED R1813,R1823, R1833,R1843,R1853 & R1863 FROM 33K TO 10K,1/4W. ECO 1751 RNI	11-17-86	
	G	CHANGED C1815,C1825,C1835,C1845, C1855, C1865 FROM 330pF TO 680pF ECO # 1755	11-24-86	
	H	PER ECO# 2391	2-10-89	

TO PAGES 8 & 9

J1804

R1813 10K C1816 330pF U1809 R1810A 22K
R1823 10K C1826 330pF U1809 R1810B 22K
R1833 10K C1836 330pF U1809 R1810C 22K
R1843 10K C1846 330pF U1809 R1810D 22K
R1853 10K C1856 330pF U1810 R1810E 22K
R1863 10K C1866 330pF U1810 R1810F 22K
R1810G 22K

J1803: 1 GND; 2 CALL LIGHT TX KEY 1/7; 3 CALL LIGHT TX KEY 2/8; 4 CALL LIGHT TX KEY 3/9; 5 CALL LIGHT TX KEY 4/10; 6 CALL LIGHT TX KEY 5/11; 7 CALL LIGHT TX KEY 6/12; 8 BLINK GATE IN; 9 GND; 10

R1801 100K U1808 C1801 330pF U1807 NE 567 N R1802 12.7K ±1% R1803 5K TRIM CERMET R1804 470Ω DS1801 RED L.E.D. C1802 .0033 NPO±5% C1803 1/35 TANT C1804 .047/100 C1805 .1/50

J1805: 6 SI SLAVE / MASTER; R1805 10K U1808

PIO #3: J406/J407

U1801 NE 567 N: C1811 .0033 NPO±5%, C1813 .047/100, C1814 1/35 TANT, C1812 .1/50, R1811 5K TRIM CERMET, R1812 12.7K ±1%, C1815 680pF, R1871A 22K
U1802 NE 567 N: C1821 .0033 NPO±5%, C1823 .047/100, C1824 1/35 TANT, C1822 .1/50, R1821 5K TRIM CERMET, R1822 12.7K ±1%, C1825 680pF, R1871C 22K
U1803 NE 567 N: C1831 .0033 NPO±5%, C1833 .047/100, C1834 1/35 TANT, C1832 .1/50, R1831 5K TRIM CERMET, R1832 12.7K ±1%, C1835 680pF, R1871G 22K
U1804 NE 567 N: C1841 .0033 NPO±5%, C1843 .047/100, C1844 1/35 TANT, C1842 .1/50, R1841 5K TRIM CERMET, R1842 12.7K ±1%, C1845 680pF, R1871B 22K
U1805 NE 567 N: C1851 .0033 NPO±5%, C1853 .047/100, C1854 1/35 TANT, C1852 .1/50, R1851 5K TRIM CERMET, R1852 12.7K ±1%, C1855 680pF, R1871D 22K
U1806 NE 567 N: C1861 .0033 NPO±5%, C1863 .047/100, C1864 1/35 TANT, C1862 .1/50, R1861 5K TRIM CERMET, R1862 12.7K ±1%, C1865 680pF, R1871F 22K

+5 DI801 IN4001 R1870 3.3Ω 1/8W

TO PAGE 6 J618/J619

J1802

U1811 ×6

J1801

J1806 TO J127 PAGE 16

J1801: 1 GND; 2 CALL LIGHT RX KEY 1/7; 3 CALL LIGHT RX KEY 2/8; 4 CALL LIGHT RX KEY 3/9; 5 CALL LIGHT RX KEY 4/10; 6 CALL LIGHT RX KEY 5/11; 7 CALL LIGHT RX KEY 6/12; 8 BLINK GATE OUT; 9 CALL LIGHT BOARD DETECT; 10 GND

PIO #3: J403/J404

SYNC TO OTHER CALL LIGHT OPTION BOARD

J1805: 5 4 3 2 1 — MASTER / SLAVE

R1815 22K W1 S2

U1808 R1807 2M R1806 4.7M DI802 IN914 R1808 390K C1806 .1/50 R1809 22K W5 U1810

W2 CUTTABLE TRACE W3

U1810 R1814 22K W4

+5 C1807 .1/50 (U1808 4001B) C1808 .1/50 (U1809 4001B) C1809 .1/50 (U1810 4001B) C1810 .1/50 (U1811 80C95 or 80C97)

U1808

USED ON THIS PAGE: C1801-C1816, C1821-C1824, C1831-C1836, C1841-C1846, C1851-C1856, C1861-C1866, D1801, DS1801, J1801-J1806 R1801-R1805, R1807-R1809, R1811-R1815, R1821-R1823, R1831-R1833, R1841-R1843, R1851-R1853, R1861-R1863, R1870, R1871A-F R1810A-R1810G, U1807-U1811

J1805 SYNC J1805
CALL LIGHTS 1-6 — PIO 3, PIO 3, PAGE 6, PAGE 8
CALL LIGHTS 7-12 — PIO 3, PIO 3, PAGE 6, PAGE 9

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± — DECIMALS .XX ± — .XXX ± — ANGLES ± —
MATERIAL —
FINISH —
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN Stan Kubler	
CHECKED	
ISSUED	

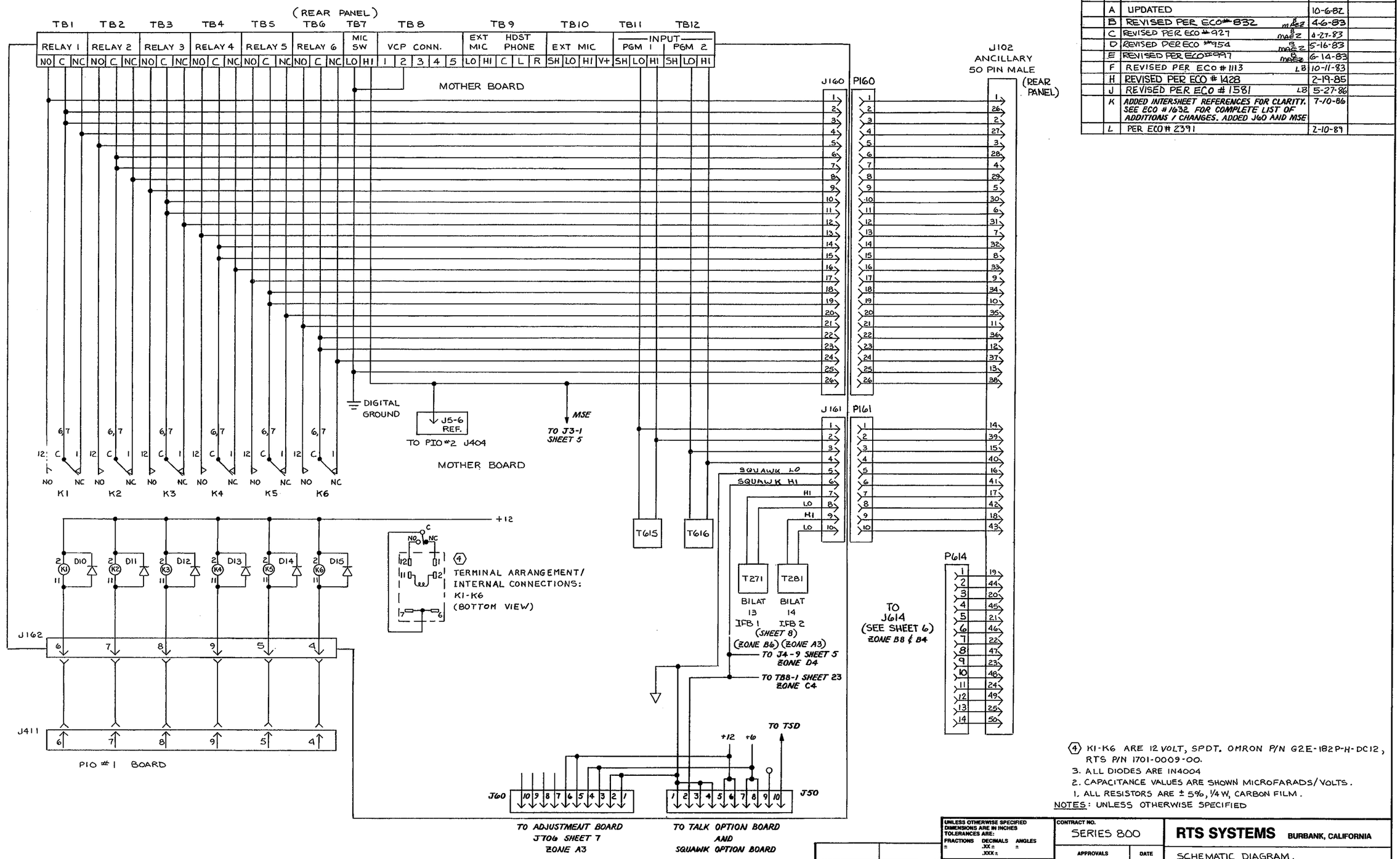
RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MODEL 802, 802A MASTER STATION
(CALL LIGHT OPTION BOARD)

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. H
SCALE NONE | SHEET 18 OF 26

Arch - Eng. Supply Co. 357-0081

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	UPDATED	10-6-82	
	B	REVISED PER ECO # 832 mae	4-6-83	
	C	REVISED PER ECO # 927 mae	4-27-83	
	D	REVISED PER ECO # 954 mae	5-16-83	
	E	REVISED PER ECO # 997 mae	6-14-83	
	F	REVISED PER ECO # 1113 LB	10-11-83	
	H	REVISED PER ECO # 1428	2-19-85	
	J	REVISED PER ECO # 1581 LB	5-27-86	
	K	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632. FOR COMPLETE LIST OF ADDITIONS / CHANGES. ADDED J60 AND MSE	7-10-86	
	L	PER ECO # 2391	2-10-87	


(REAR PANEL)
TB1 TB2 TB3 TB4 TB5 TB6 TB7 TB8 TB9 TB10 TB11 TB12
RELAY 1 RELAY 2 RELAY 3 RELAY 4 RELAY 5 RELAY 6 MIC SW VCP CONN. EXT MIC HDST PHONE EXT MIC INPUT PGM 1 PGM 2
NO C NC LO HI 1 2 3 4 5 LO HI C L R SH LO HI V+ SH LO HI SH LO HI
MOTHER BOARD
J160 P160
J102 ANCILLARY 50 PIN MALE (REAR PANEL)
DIGITAL GROUND
J5-6 REF.
TO PIO #2 J404
MOTHER BOARD
MSE
TO J3-1 SHEET 5
J161 P161
SQUAWK LO
SQUAWK HI
HI
LO
HI
LO
T615 T616
T271 T281
BILAT 13 IFB 1
BILAT 14 IFB 2
(SHEET 8)
(ZONE B6) (ZONE A3)
TO J4-9 SHEET 5 ZONE D4
TO TB8-1 SHEET 23 ZONE C4
P614
TO J614 (SEE SHEET 6) ZONE B8 & B4
K1 K2 K3 K4 K5 K6
D10 D11 D12 D13 D14 D15
+12
J162
J411
P10 #1 BOARD
TERMINAL ARRANGEMENT/ INTERNAL CONNECTIONS: K1-K6 (BOTTOM VIEW)
TO TSD
+12 +6
J60
J50
TO ADJUSTMENT BOARD J706 SHEET 7 ZONE A3
TO TALK OPTION BOARD AND SQUAWK OPTION BOARD

④ K1-K6 ARE 12 VOLT, SPDT. OMRON P/N G2E-182P-H-DC12, RTS P/N 1701-0009-00.

3. ALL DIODES ARE IN4004

2. CAPACITANCE VALUES ARE SHOWN MICROFARADS/VOLTS.

1. ALL RESISTORS ARE ± 5%, 1/4 W, CARBON FILM.

NOTES: UNLESS OTHERWISE SPECIFIED

USED ON THIS PAGE: D10-D15, R161, R162, Q7, Q8, K1-K6, T615, T616, T271, T281, TB1-TB12, J102, J50, J160, J161, J404, J409

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	7/22/82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION MODEL 802, 802A RELAYS, RELAY DRIVERS, ANCILLARY CONNECTOR

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. L

SCALE | SHEET 19 OF 26

Arch - Eng. Supply Co. 367-9001

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED	10-11-82	
	B	ADDED E301-E306 DES & NOTE 1 SHEET 2	11-17-82	
	C	REV. PER ECO # C-2764924 S. J. DE	4-25-83	
	D	REV PER ECO # 910 B. MAER	5-25-83	
	E	ADDED E35, E36, RELATED CUTABLE TRACE & NOTE 2 B. MAER	6-23-83	
	F	ADDED GLOBAL RESET TALLY & KEY PINS 6 & 9, J223 GM	10-9-84	
	G	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES	7-10-86	
	H	PER ECO # 2391	2-10-89	
	J	REVISED PER ECO # 2691 ESL	10-17-89	

(REAR PANEL) CABLE ASS'Y
LINE CONNECTOR
J101

MOTHER BOARD (SHEET 8)
P210 J210

CH.1	1	BALANCED AUDIO, CH 1	T211
	26	BALANCED AUDIO, CH 1	
CH.2	2	BALANCED AUDIO, CH 2	T221
	27	BALANCED AUDIO, CH 2	
CH.3	3	BALANCED AUDIO, CH 3	T231
	28	BALANCED AUDIO, CH 3	
CH.4	4	BALANCED AUDIO, CH 4	T241
	29	BALANCED AUDIO, CH 4	
CH.5	5	BALANCED AUDIO, CH 5	T251
	30	BALANCED AUDIO, CH 5	
CH.6	6	BALANCED AUDIO, CH 6	T261
	31	BALANCED AUDIO, CH 6	
CH.7	7	BALANCED AUDIO, CH 7	
	36	BALANCED AUDIO, CH 7	
CH.8	8	BALANCED AUDIO, CH 8	
	33	BALANCED AUDIO, CH 8	
CH.9	9	BALANCED AUDIO, CH 9	
	34	BALANCED AUDIO, CH 9	
CH.10	10	BALANCED AUDIO, CH 10	
	35	BALANCED AUDIO, CH 10	
CH.11	11	BALANCED AUDIO, CH 11	
	36	BALANCED AUDIO, CH 11	
CH.12	12	BALANCED AUDIO, CH 12	
	37	BALANCED AUDIO, CH 12	

2-WIRE: SEND, RECEIVE
4-WIRE: SEND

KEYING

CH.1	13	RETURN
	38	KEY 1
CH.2	14	RETURN
	39	KEY 2
CH.3	15	RETURN
	40	KEY 3
CH.4	16	RETURN
	41	KEY 4
CH.5	17	RETURN
	42	KEY 5
CH.6	18	RETURN
	43	KEY 6
CH.7	19	RETURN
	44	KEY 7
CH.8	20	RETURN
	45	KEY 8
CH.9	21	RETURN
	46	KEY 9
CH.10	22	RETURN
	47	KEY 10
CH.11	23	RETURN
	48	KEY 11
CH.12	24	RETURN
	49	KEY 12
PROGRAM	25	PGM HI
	50	PGM LO

⚠1 4-WIRE CONNECTOR J105 (REF) SHEET 22
13 38 14 39 15 40 16 41 17 42 18 43

P310 J310

1	T311
2	T321
3	T331
4	T341
5	T351
6	T361
7	
8	
9	
10	
11	
12	
13	N.C.
14	N.C.

TALK/SQUAWK OPTION P.C.BD. (SHEETS 4 & 10)

MOTHER BOARD
P220 J220 J221 P221 CABLE P2410 J410

1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3					
4	4	3	3	3	3	3
5	5					
6	6	4	4	4	4	4
7	7					
8	8	5	5	5	5	5
9	9					
10	10	6	6	6	6	6
11	1					
12	12	7	7	7	7	7
13	13					
14	14	8	8	8	8	8
15	15					
16	16	9	9	9	9	9
17	17	10	10	10	10	10

PIO BD #2 (SHEET 13)

J223 P223 P2411 J411

18	1	1	1
	2	2	2
19			
20	3	3	3
21			
22	4	4	4
23			
24	5	5	5
25			
26	6	6	6
	7	7	7
	8	8	8
	9	9	9
	10	10	10

E33 E34 E35 E36

⚠2 CHIME LISTEN ENABLE (LI2-11) SHEET 5 ZONE D6
CHIME TALK ENABLE SHEET 17 ZONE B2

4-WIRE CONNECTOR ⚠1 J105 (REF) SHEET 22
19 44 20 45 21 46 22 47 23 48 24 49 25 50

(SEE SHEET 23 ZONE A4) GLOBAL RESET TALLY
GLOBAL RESET KEY

⚠2 CUT TRACES BETWEEN E33 & E35 AND BETWEEN E34 & E36 FOR AUX PGM. SEE SHT. 6 ZONE A8.
⚠1 THIS CONNECTION USED ONLY WHEN 4-WIRE OPTION TYPE 2 IS INSTALLED. SEE SD6471 FOR WIRING OF J105 4-WIRE OPTIONS TYPE 3 & TYPE 4.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN S. DUEBBER	7/26/82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MODEL 802, 802A, MASTER STATION (LINE IN/OUT CONNECTIONS)

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. J
SCALE — | SHEET 20 of 26

SQUAWK CONNECTOR(REAR PANEL) TALLYS

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	C	REVISED & REDRAWN PER ECO # 919 B.MAEE	1-8-83	
	D	REVISED PER ECO # 997 B.MAEE	6-13-83	
	E	DELETED W1. ADDED TALK BUS J318-10 ECO 2133	2-16-88	
	F	PER ECO # Z391	7-10-89	

J104 — P310A — P303A — P304A — P305 — P310B — P303B — P304B

J310 — J303 — J304A — J305 — J310 — J303 — J304B

(2) TALK/SQUAWK OPTION BD #1 (SQUAWK 1-6) (SHEET 9)

(3) TALK/SQUAWK OPTION BD # 2 (SQUAWK 7-10) (SHEET 9)

J318 (TALK BUS) — J309 — J308 — J300A — J300B — J306 — J318 (TALK BUS)

P318A — P309 — P308 — P300A — P300B — P306 — P318B

P318A: GND, SQUAWK, GND, GND, +12V, +12V, +6V, +6V, USD, TSD

P309: GND, SQUAWK SPARE, SQUAWK ENABLE (SW1), SQUAWK POSIT BASE (SW2), SQUAWK POSIT BASE (SW3), SQUAWK TALLY 9, SQUAWK TALLY 10, GND

J1405 — P405 — P10 BD #1 (SHEET 12)

P308: GND, SQUAWK TALLY 1, SQUAWK TALLY 2, SQUAWK TALLY 3, SQUAWK TALLY 4, SQUAWK TALLY 5, SQUAWK TALLY 6, SQUAWK TALLY 7, SQUAWK TALLY 8, GND

P3401 — J401

P300A: GND, SQUAWK KEY 1, SQUAWK KEY 2, SQUAWK KEY 3, SQUAWK KEY 4, SQUAWK KEY 5, SQUAWK KEY 6, SQUAWK KEY 7, SQUAWK KEY 8, GND

P3411 — J411

P300B: GND, 150 KEY 1, 150 KEY 2, 150 KEY 3, 150 KEY 4, 150 KEY 5, 150 KEY 6, SQUAWK KEY 9, SQUAWK KEY 10, GND

P3410 — J410

P10 BD #3 (SHEET 14)

P306 — P52 (1) — TO 150 OPTION/ 150 KEYS (SHEET 23)

P50 — J50 — VCP CONNECTOR TB8

P50: 1 GND, 2 SQUAWK, 3, 4, 5 +12V, 6, 7 +6V, 8, 9 USM, 10 TSD

TB8: 1, 2, J4-REF → 9

MOTHER BD. (SHEET 19)

NOTE: (UNLESS OTHERWISE SPECIFIED).

(1) P52 IS ADDED TO CABLE ONLY WHEN BOTH 150 AND SQUAWK OPTIONS ARE INCLUDED

(2) THE FOLLOWING CONNECTORS ARE NOT USED ON TALK/SQUAWK BD #1: J300B, J304B, J306, J316, J317.

(3) THE FOLLOWING CONNECTORS ARE NOT USED ON TALK/SQUAWK BD. # 2: J300A, J304A, J305, J308, J309, J316, J317

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN B.MAEE	4-8-83
CHECKED	
ISSUED	

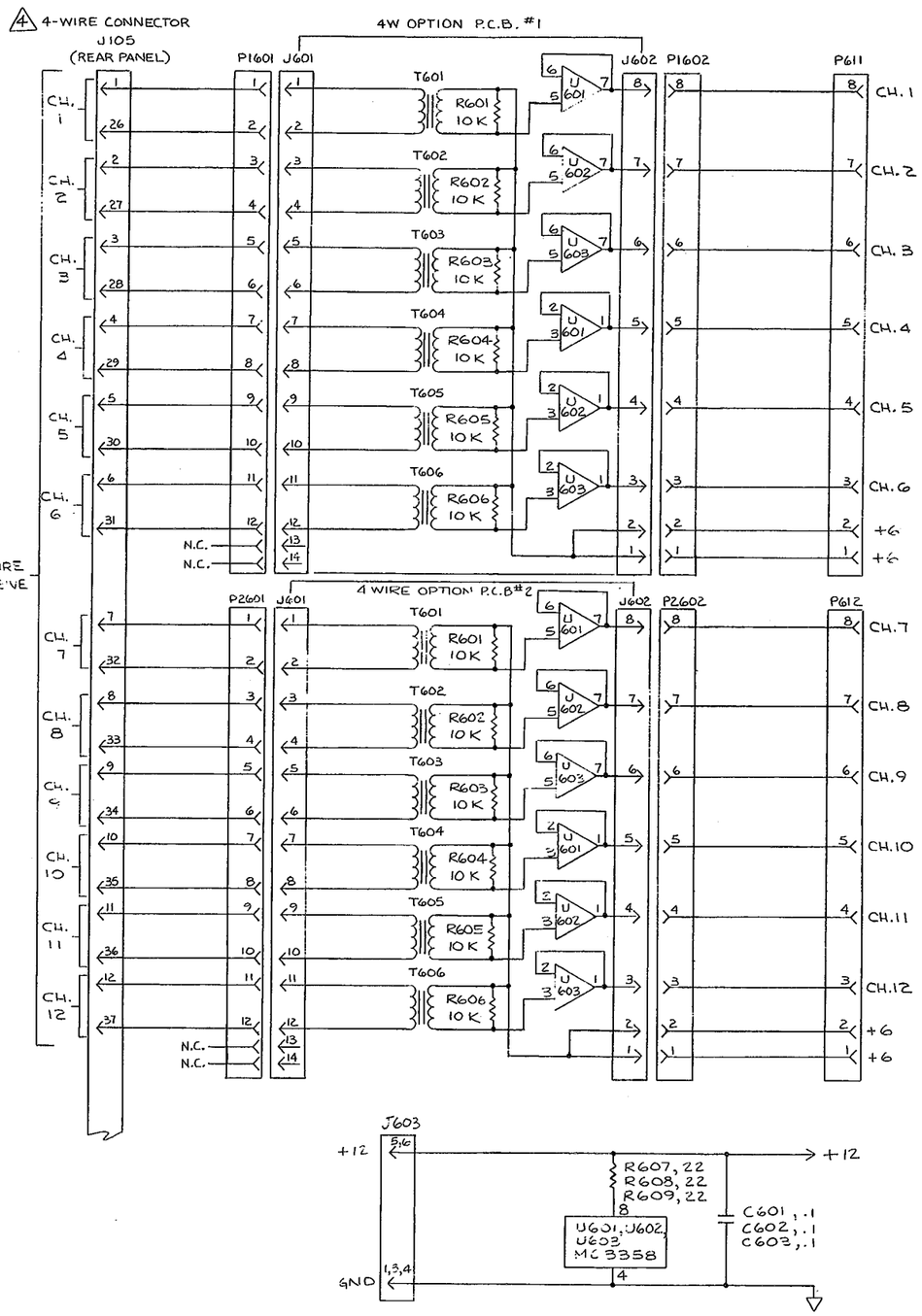
RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM - SQUAWK CONNECTIONS, MASTER STATION, MODEL 802, 802A

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. F

SCALE — | SHEET 21 of 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED & REDRAWN	10-2-82	
	B	ADDED NOTE 3 & UPDATED	11-23-82	
	C	REVISED PER ECO# 910 MARR	5-25-83	
	D	ADDED J601-U603 AND RELATED INFO. RB	5/13/85	
	E	PER ECO # 2391	2-10-89	
	F	REVISED PER ECO#2691 CR	10-17-89	



5. 4-WIRE OPTION "TYPES" ARE AS FOLLOWS:
   - TYPE 1 – SPECIAL OPTION USED FOR HUGHES AIRCRAFT, ROLAND TRAINER SYSTEM.
   - TYPE 2 – STANDARD 4-WIRE OPTION WITH A NON-CONFERENCE MODE SET-UP. J101 "LINE" CONNECTOR USED AS 4-WIRE SEND, J105 "4-WIRE" CONNECTOR USED AS 4-WIRE RECEIVE.
   - TYPE 3 – CONFERENCE MODE SET-UP, WITH 4-WIRE SEND/RECEIVE AND PROGRAM INPUT #2 FOUND ON J105.
   - TYPE 4 – NON-CONFERENCE MODE SET-UP, WITH J105 WIRING AS IN TYPE 3.

4 FOR HOOK-UP OF J105 PINS 13-25, 38-50 AS USED IN THE TYPE 2 (STANDARD) 4-WIRE OPTION, SEE SHEET 20. FOR SCHEMATIC OF J105 AS USED FOR TYPE 3 & TYPE 4 4-WIRE OPTIONS, SEE SD6471.

3. PAGE 22 IS NOT VALID FOR HUGHES 362470-600 (TYPE 1 4WIRE OPTION)

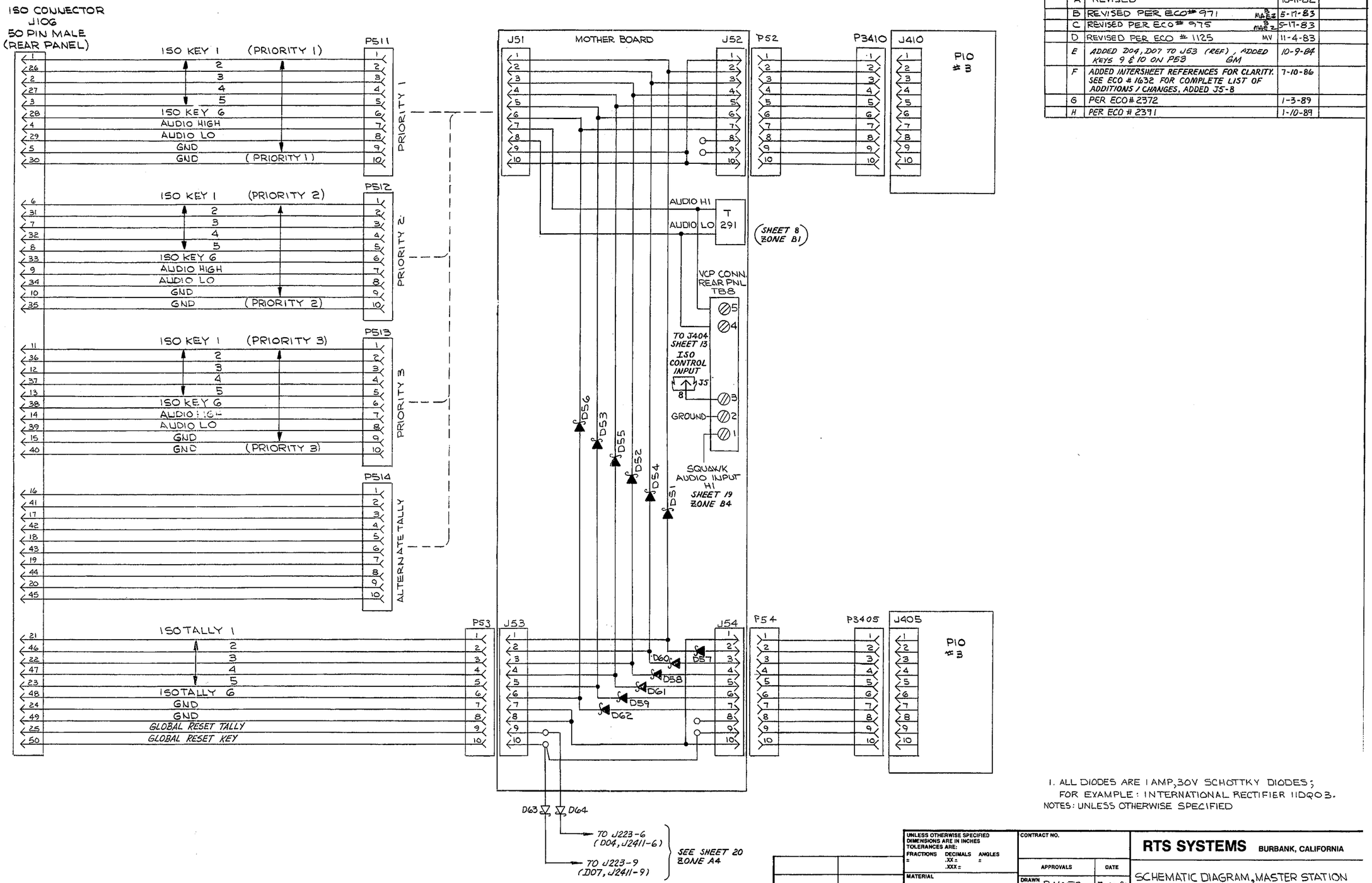
2. T601 - T606 ARE 10K : 10K TRANSFORMERS UTC MOIS OR EQUIV.

1. ALL RESISTORS ARE 1/4W, 5% CARBON FILM

NOTES: UNLESS OTHERWISE SPECIFIED

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 800	RTS SYSTEMS BURBANK, CALIFORNIA	
		MATERIAL	APPROVALS / DATE	SCHEMATIC DIAGRAM MASTER STATION, MODEL 802, 802A, 4-WIRE OPTION	
		FINISH	DRAWN S. DUEBBER 10-2-82		
NEXT ASSY	USED ON		CHECKED		
APPLICATION		DO NOT SCALE DRAWING	ISSUED	SIZE D FSCM NO. 60572 DWG. NO. SD 3000 REV. F	
				SCALE SHEET 22 OF 26	

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED	10-11-82	
	B	REVISED PER ECO# 971 MAE2	5-17-83	
	C	REVISED PER ECO # 975 MAE2	5-17-83	
	D	REVISED PER ECO # 1125 MV	11-4-83	
	E	ADDED D04, D07 TO J53 (REF), ADDED KEYS 9 & 10 ON P53 GM	10-9-84	
	F	ADDED INTERSHEET REFERENCES FOR CLARITY. SEE ECO # 1632 FOR COMPLETE LIST OF ADDITIONS / CHANGES, ADDED J5-8	7-10-86	
	G	PER ECO# 2372	1-3-89	
	H	PER ECO # 2391	1-10-89	



1. ALL DIODES ARE 1 AMP, 30V SCHOTTKY DIODES; FOR EXAMPLE: INTERNATIONAL RECTIFIER 11DQ03.

NOTES: UNLESS OTHERWISE SPECIFIED

NEXT ASSY	USED ON
APPLICATION	DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH

CONTRACT NO.

APPROVALS	DATE
DRAWN BMAE2	7-27-82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION
MODEL 802, 802A, ISO CONNECTOR

SIZE	FSCM NO.	DWG. NO.	REV.
D	60572	SD3000	H

SCALE | SHEET 23 OF 26

Arch - Eng. Supply Co 357-9661

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	B	REV & REDRAWN PER ECO # 927		
	C	REV PER ECO # 1016 MAE2	6-14-83	
	D	REVISED PER ECO 1190 GM	2-23-84	
	E	CHANGED R301 FROM 200Ω TO 390Ω ECO # 1754 RN	11-25-86	
	F	PER ECO # 2391	2-10-89	

TO 1ST IFB CENTRAL ELECTRONICS UNIT, MODEL 4010

J103 IFB CONNECTOR #1 (REAR PANEL)

P1314A PRIORITY 1 · P1314B PRIORITY 2 · P1314C PRIORITY 3 · P1314D PRIORITY 4

TALLY 1 · TALLY 2 · TALLY 3 · TALLY 4 · TALLY 5 · TALLY 6 · COMMON · COMMON · COMMON · COMMON

P1315

J1315 IS CONNECTED TO 1 OF 4 PRIORITY PLUGS

IFB OPTION P.C.B. #1 (IFB 1-4, SA1) AS3000-2

J314 · J315

2 S301 IFB SELECT A B BILAT 13 BILAT 14

R301 3 390Ω

D305 · D304 · D303 · D302 · D301 · D306 · D307 · D308 · D309 · D310 · E306 · E305 · E307 · E304 · E302 · E303 · E301

J310 · J311 · J312 · J313

P1310 · P1311 · P1312 · P1313

1

P3408 GROUND · IFB KEY #1 · IFB KEY #2 · IFB KEY #3 · IFB KEY #4 · SA1 · SPARE · SPARE · SPARE · GROUND

P3402 GROUND · IFB TALLY #1 · IFB TALLY #2 · IFB TALLY #3 · IFB TALLY #4 · SA1 · SPARE · SPARE · SPARE · GROUND

J408 · J402

P10 P.C.B. #3 (SHEET 14)

J102 ANCILLARY CONNECTOR (SHEET 19) REAR PANEL

14 · 39 · 15 · 40 · 16 · 41 · 17 · 42 · 18 · 43

4 P102 TERMINATION PLUG

17 · 42 · 18 · 43

R1001 200Ω · R1002 200Ω

TO 2ND IFB CENTRAL ELECTRONICS UNIT MODEL 4010

J10X 2ND IFB CONNECTOR (REAR PANEL)

P2314A PRIORITY 1 · P2314B PRIORITY 2 · P2314C PRIORITY 3 · P2314D PRIORITY 4

TALLY 1 · TALLY 2 · TALLY 3 · TALLY 4 · TALLY 5 · TALLY 6 · COMMON · COMMON · COMMON · COMMON

P2315

J1415 IS CONNECTED TO 1 OF 4 PRIORITY PLUGS

IFB OPTION P.C.B. #2 (IFB 5-8, SA2) AS3000-2

J314 · J315

2 S301 IFB SELECT A B BILAT 13 BILAT 14

R301 3 390Ω

W2

D305 · D304 · D303 · D302 · D301 · D306 · D308 · D309 · D310 · N.C. · N.C. · N.C. · N.C.

J310 · J311 · J312 · J313

P2310 · P2311 · P2312 · P2313

1

P161 PGM 1 LO · PGM 1 HI · PGM 2 LO · PGM 2 HI · SQUAWK LO · SQUAWK HI · BILAT 13 HI · BILAT 13 LO · BILAT 14 HI · BILAT 14 LO

FROM J161 MOTHER BD., BILATS 13 & 14 (SHEETS 8 & 19)

P3409 GROUND · IFB KEY #5 · IFB KEY #6 · IFB KEY #7 · IFB KEY #8 · SA2 · SPARE · SPARE · SPARE · GROUND

P2405 GROUND · IFB TALLY #5 · IFB TALLY #6 · IFB TALLY #7 · IFB TALLY #8 · SA2 · SPARE · SPARE · SPARE · GROUND

J409 · J405

P10 P.C.B. #3 (SHEET 14) · P10 P.C.B. #2 (SHEET 13)

4 802 UNITS WITH IFB EMULATE OPTIONS 4001 OR 4002 THAT DO NOT HAVE R301 INSTALLED, (UNITS BUILT BEFORE 3-1-84), SHOULD HAVE BILATERAL CURRENT SOURCES 13 AND 14 TERMINATED WITH P102.

3 IF MORE THAN ONE 802 WITH IFB EMULATE OPTIONS 4001 OR 4002 IN A SYSTEM HAS BEEN SET TO THE SAME PRIORITY, R301 MUST BE CLIPPED FROM ALL BUT ONE UNIT. THIS WILL PREVENT A LOSS IN SIGNAL GAIN THROUGH DOUBLE TERMINATION.

2 SET SLIDE SWITCH S301 TO BILAT 13 POSITION ON IFB OPTION P.C.B. #1; SET S301 TO BILAT 14 POSITION ON IFB OPTION P.C.B. #2.

1 THIS DRAWING SHOWS THE IFB CONFIGURATION WHICH EMULATES A MODEL 4002 IFB CONTROL STATION. FOR UNITS WHICH EMULATE A MODEL 4001 IFB CONTROL STATION: a) DISREGARD CIRCUITRY DEALING WITH IFB OPTION P.C.B. #2; b) J311 OF IFB OPTION P.C.B. #1 CONNECTS TO J161 ON THE MOTHER BD. (SHEETS 8 & 19) INSTEAD OF J311 OF IFB OPTION P.C.B. #2.

NOTES: (UNLESS OTHERWISE SPECIFIED)

AS3000-2	802A
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± · DECIMALS .XX ± · .XXX ± · ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

APPROVALS	DATE
DRAWN B.MAEZ	4-27-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MODEL 802, 802A, IFB OPTION

SIZE D · FSCM NO. 60572 · DWG. NO. SD3000 · REV. F

SCALE — · SHEET 24 of 216.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REV PER ECO #927 B.MAES	4-27-83	
	B	REV PER ECO 1123 DM	11-4-83	
	C	PER ECO # 2391	2-10-89	

BOARD NAME	SUBCATEGORY	ARTWORK DASH #	REFERENCE DESIGNATION #'S	SD 3000 SCHEMATIC SHEET #
MOTHER	MIC. PRE., HEADPHONE & SPEAKER AMPLIFIERS & MISC.	-1	000 TO 124	4, 5
	LISTEN SWITCHING	-1	611 TO 630	6
	TALK, SW BILATERAL CS CH 1-6, CH 13, 14, 15	-1	200 TO 299	8
	POWER SUPPLY	-1	125 TO 149	16
TALK/SQUAWK OPTION	P.C.B. SCHEMATIC	-3	300 TO 399	9
	TALK CONNECTIONS			10
	SQUAWK CONNECTIONS			21
I/O PIO #1	SWITCHBOARD DRIVER	-4	400 TO 499	12
I/O PIO #2	INTERNAL DRIVER	-4	400 TO 499	13
I/O PIO #3	EXTERNAL DRIVER	-4	400 TO 499	14
CPU		-5	500 TO 599	15
4W OPTION 1	FOUR WIRE TRANSFORMERS CH 1-6	-6	600 TO 606	22
4W OPTION 2	FOUR WIRE TRANSFORMERS CH 7-12	-6	600 TO 606	22
ADJUSTMENT		-7	700 TO 799	7
SWITCHBOARD		-9	900 TO 999	11
CALL LIGHT OPTION		-18	1800 TO 1899	18
ANALOG BLOCK SCHEMATIC				1, 2
DIGITAL BLOCK SCHEMATIC				3
MOTHER	CHIME OPTION	-1	150 TO 159	17
	INTERCONNECT/RELAYS		160 TO 169	19
	LINE CONNECTOR		170 TO 179	20
	SQUAWK CONNECTOR			21
	FOUR WIRE CONNECTOR			22
	150 CONNECTOR			23
IFB OPTION		-2		24
	INDEX			25

MODEL 802
REAR PANEL TERMINAL BLOCK CONNECTIONS

TB 1 - RELAY 1
TB 2 - RELAY 2
TB 3 - RELAY 3
TB 4 - RELAY 4
TB 5 - RELAY 5
TB 6 - RELAY 6
TB 7 - EXT MIC SW
TB 8 - VCP CONN.
TB 9 - EXT HDST
TB10 - EXT MIC IN
TB11 - PGM 1 IN
TB12 - PGM 2 IN
TB13 - MIC OUTPUT 1
TB14 - MIC OUTPUT 2
TB15 - EXT SPKR
TB16 - POWER INPUT

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. SERIES 800

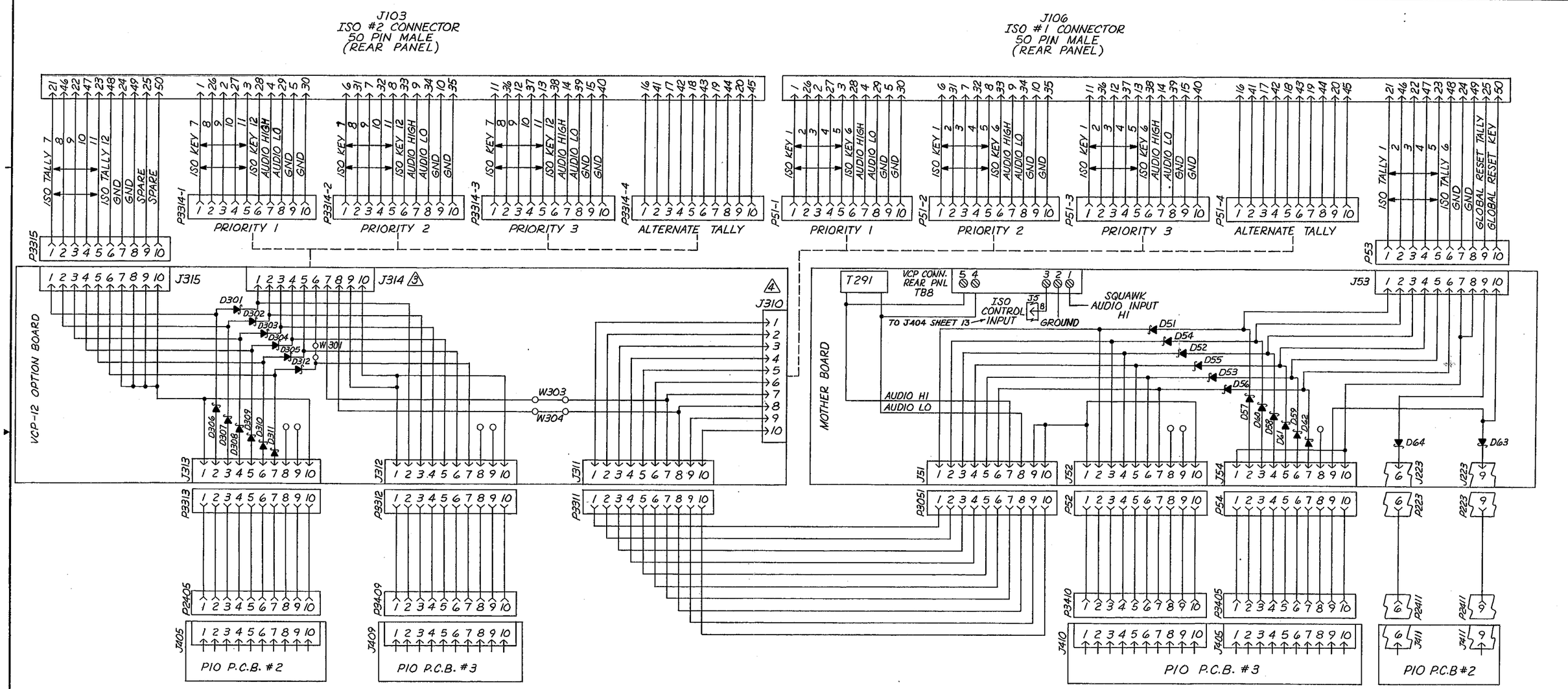
APPROVALS	DATE
DRAWN S.DUEBBER	7/27/82
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM, MASTER STATION, MODEL 802.802A, INDEX

SIZE D | FSCM NO. 60572 | DWG. NO. SD 3000 | REV. C
SCALE — | SHEET 25 OF 26

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	ADDED INTERSHEET REFEREANCE FOR CLARITY. SEE ECO # 1432 FOR COMPLETE LIST OF ADDITIONS / CHANGES. ADDED J5-8	7-10-86	
	B	PER ECO # 2391	2-10-89	



4 J310 IS CONNECTED TO 1 OF 4 PRIORITY PLUGS: P51-1, P51-2, P51-3 OR P51-4.

3 J314 IS CONNECTED TO 1 OF 4 PRIORITY PLUGS: P3314-1, P3314-2, P3314-3 OR P3314-4.

2. THE VCP-12A OPTION HAS BEEN UPDATED FROM THE VCP-12 OPTION TO INCLUDE THE GLOBAL RESET FUNCTION.

1. ALL DIODES ARE 1AMP, 30V SCHOTTKY DIODES, FOR EXAMPLE: INTERNATIONAL RECTIFIER 11DQ03.

NOTES: UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS	DATE
DRAWN R. PEKSON	12-6-84
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

SCHEMATIC DIAGRAM
MASTER STATION, MODEL 802, 802A
ISO OPTION, VCP-12A

SIZE D | FSCM NO. 60572 | DWG. NO. SD3000 | REV. B

SCALE | SHEET 26 OF 26

POWER ON INITIALIZATION

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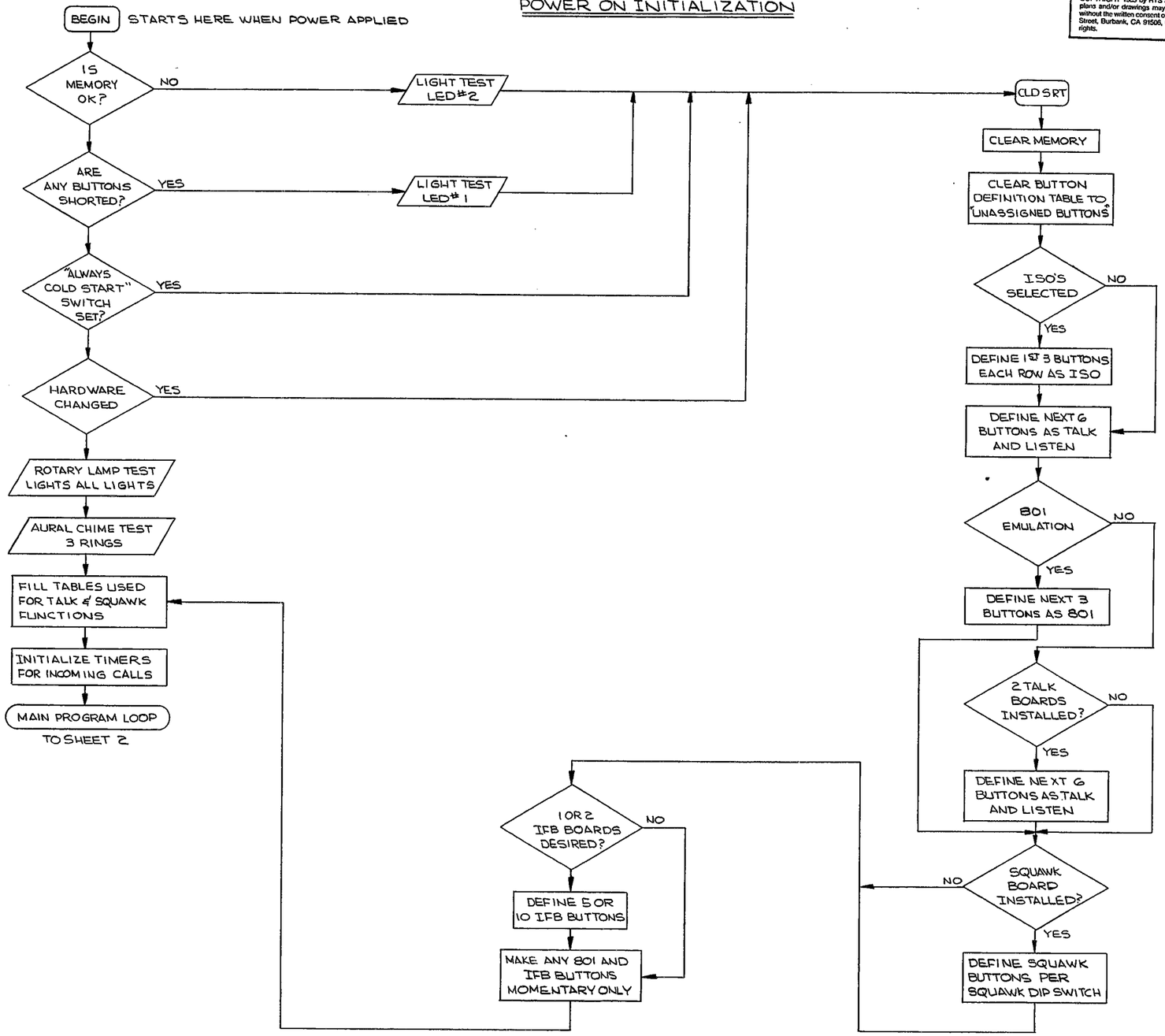
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B.MAEZ	5-19-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

FLOW CHART, MODEL 802
POWER ON INITIALIZATION

SIZE D | FSCM NO. | DWG. NO. FC3398 | REV.
SCALE — | SHEET 1 of 7

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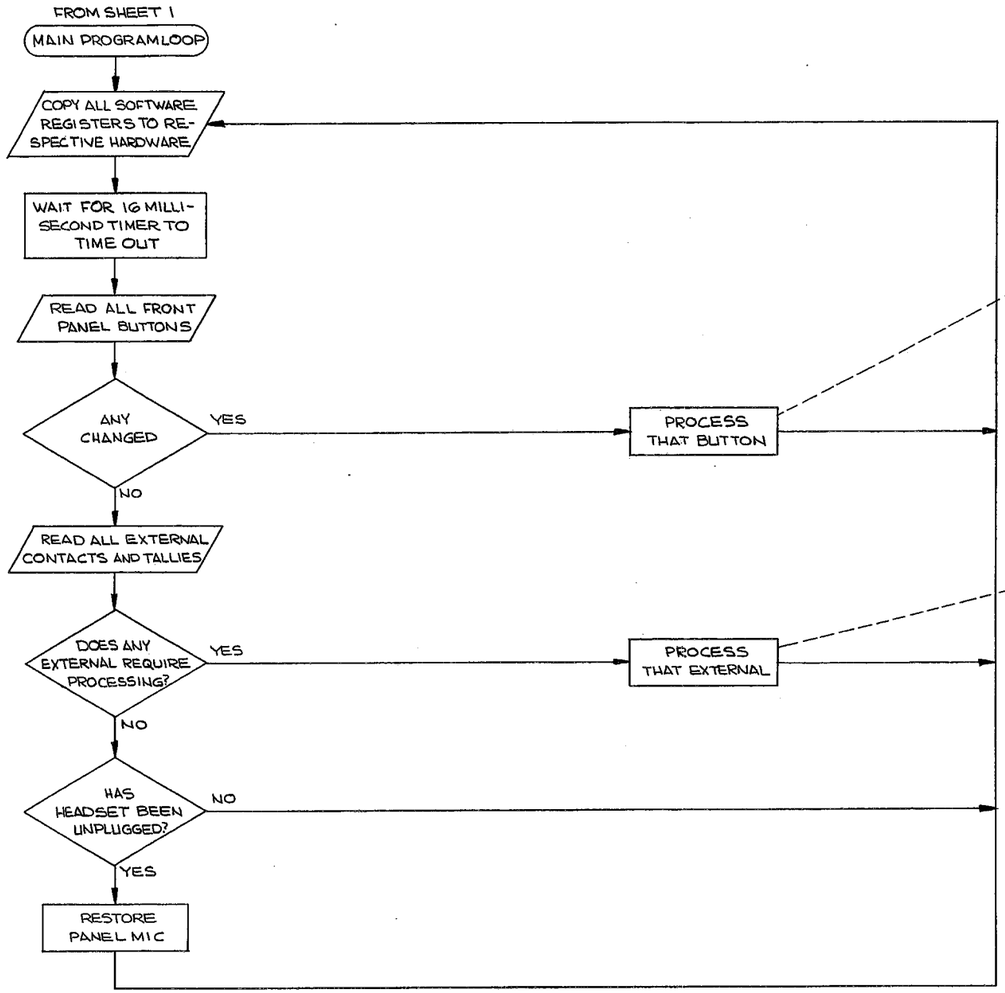
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

MAIN PROGRAM LOOP



ROUTINES EXIST FOR EACH OF THE FOLLOWING BUTTONS:

- ISO, TALK, LISTEN — SHEET 3
- SQUAWK
- IFB
- IFB ALL
- PRESETS, UNASSIGNED BUTTONS — SHEET 4
- CALL/SETUP — SHEET 5/SHEET 7
- PANEL MIC — SHEET 4
- SPEAKER — SHEET 3
- MIC ENABLE — SHEET 4

ROUTINES EXIST FOR EACH OF THE FOLLOWING:

- SQUAWK TALLY
- IFB TALLY (EXT IFB)
- EXTERNAL ISO REQUEST OR ISO TALLY (CAM ISO)
- EXTERNAL PRESET-4 REQUEST
- EXTERNAL MIC BUTTON (AUX MIC)
- INCOMING CALLS (CALL PLL)

— SHEET 5

	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
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CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B. MAEZ	5-19-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CAI RNIA

FLOW CHART, MODEL 802
MAIN PROGRAM LOOP

SIZE D | FSCM NO. | DWG. NO. FC3398 | REV.
SCALE — | SHEET 2 of 7

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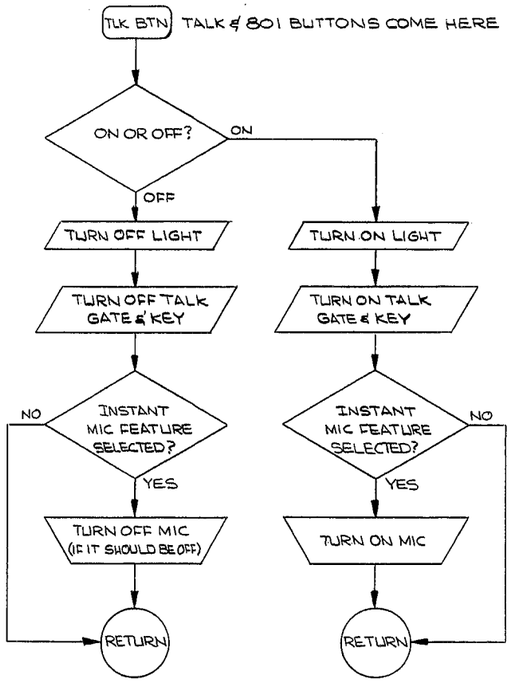
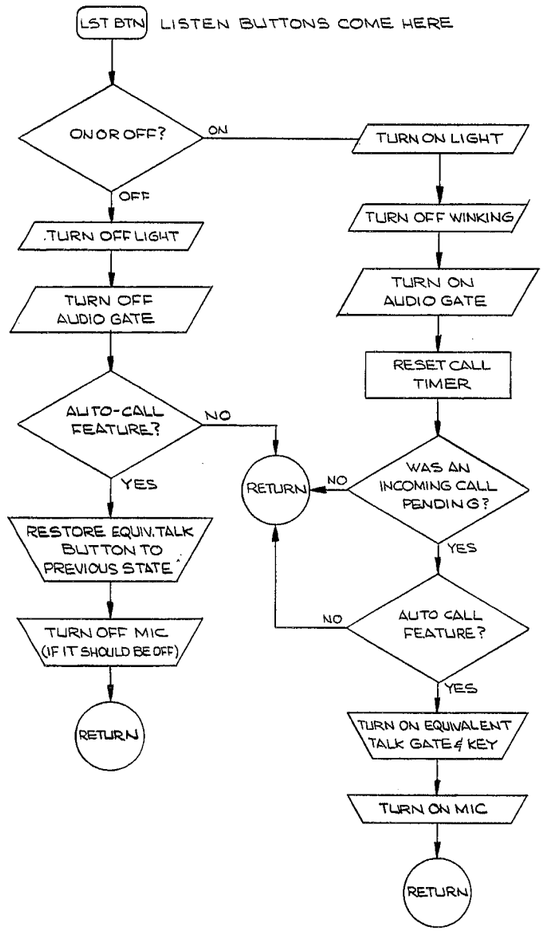
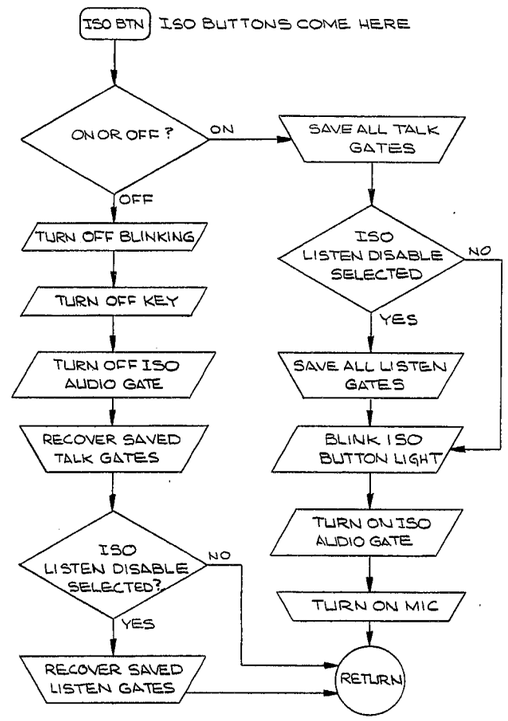
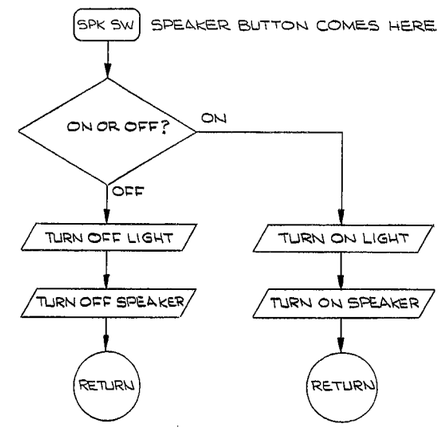
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

BUTTON FUNCTIONS 1









	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .XXX ± | ANGLES ±
MATERIAL
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CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B MAER	5-20-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

FLOW CHART, MODEL 802
BUTTON FUNCTIONS 1

SIZE D | FSCM NO. | DWG. NO. FC3398 | REV.
SCALE — | SHEET 3 of 7

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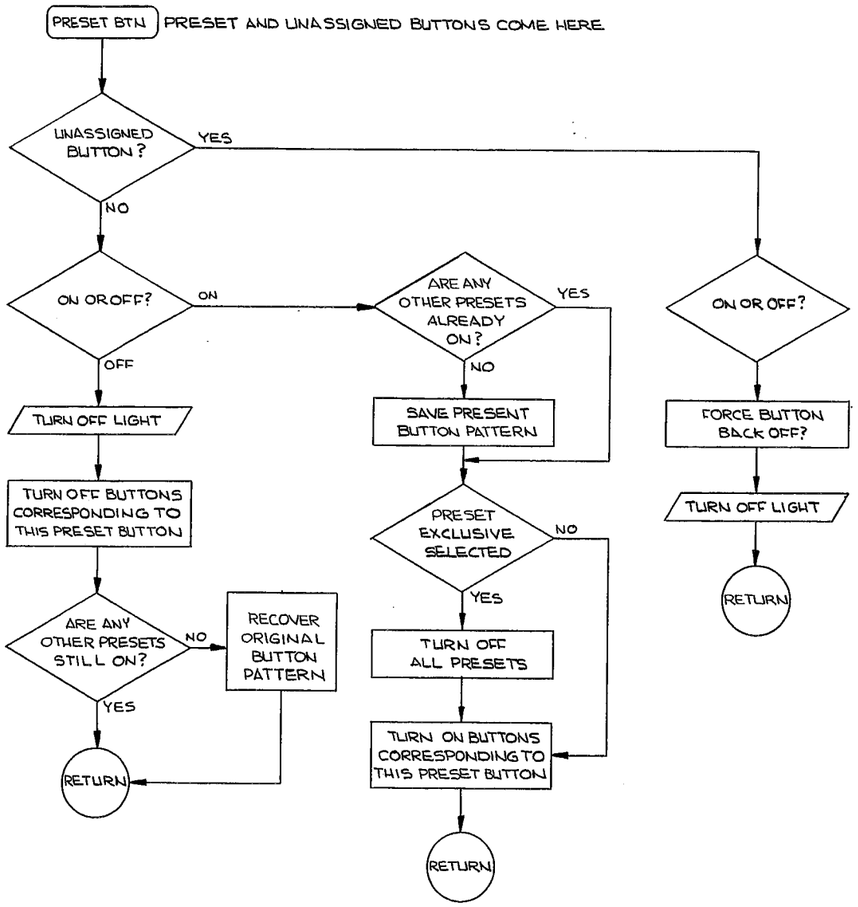
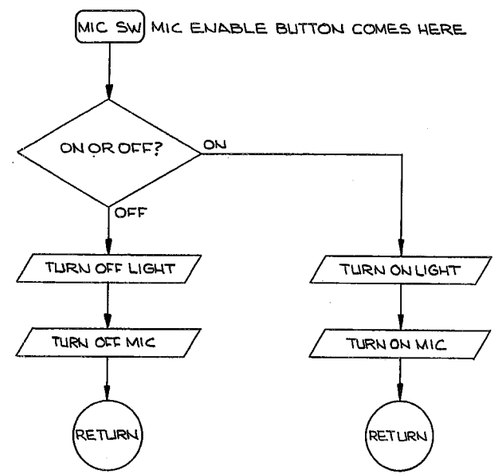
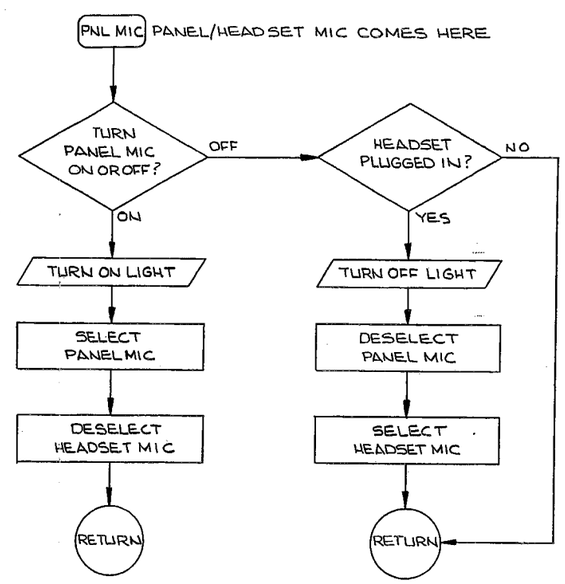
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

BUTTON FUNCTIONS 2







	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B.MAEZ	5-23-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

FLOW CHART, MODEL 802
BUTTON FUNCTIONS 2

SIZE D | FSCM NO. | DWG. NO. FC3398 | REV.
SCALE — | SHEET 4 OF 7

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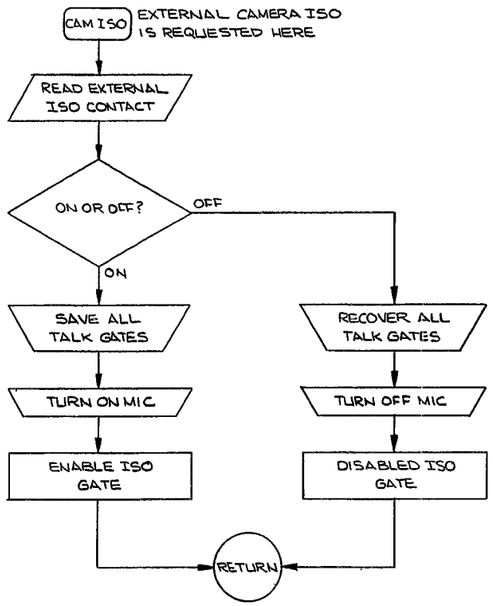
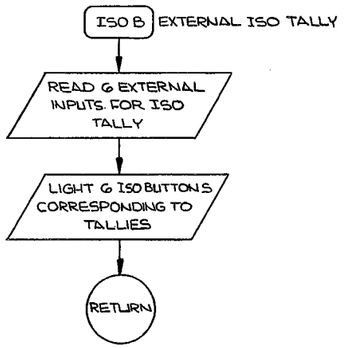
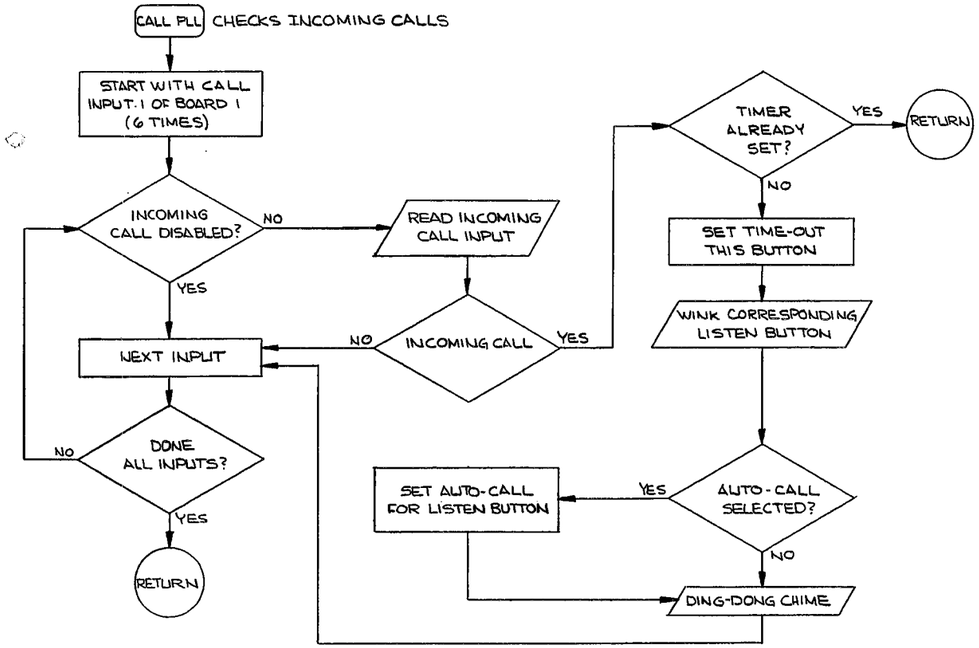
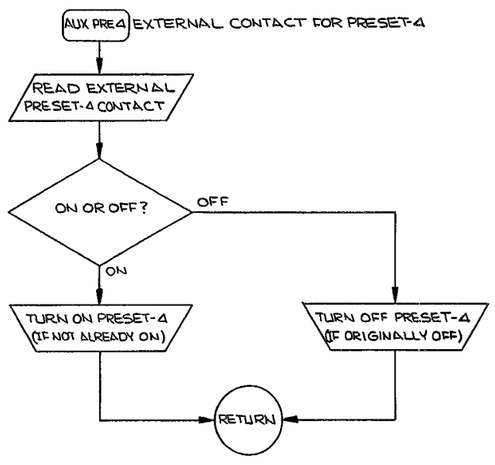
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

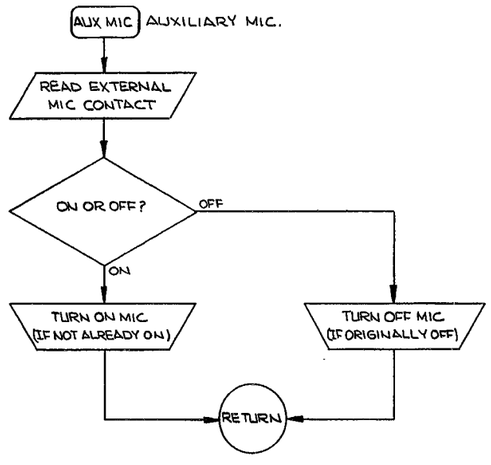
EXTERNALS

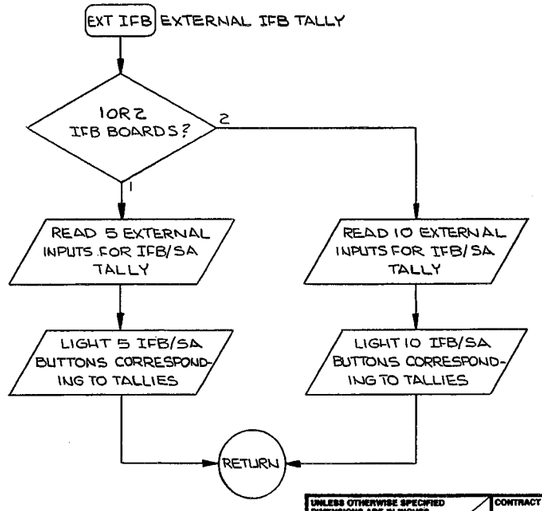


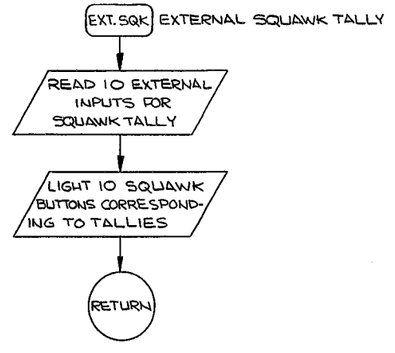









EXT IFB
EXTERNAL IFB TALLY
1 OR 2 IFB BOARDS?
2
1
READ 5 EXTERNAL INPUTS FOR IFB/SA TALLY
LIGHT 5 IFB/SA BUTTONS CORRESPONDING TO TALLIES
READ 10 EXTERNAL INPUTS FOR IFB/SA TALLY
LIGHT 10 IFB/SA BUTTONS CORRESPONDING TO TALLIES
RETURN


EXT. SQK
EXTERNAL SQUAWK TALLY
READ 10 EXTERNAL INPUTS FOR SQUAWK TALLY
LIGHT 10 SQUAWK BUTTONS CORRESPONDING TO TALLIES
RETURN

	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B.MAEZ	5-24-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

FLOW CHART, MODEL 802
EXTERNALS

SIZE D | FSCM NO. | DWG. NO. FC3398 | REV.
SCALE _ | SHEET 5 of 7

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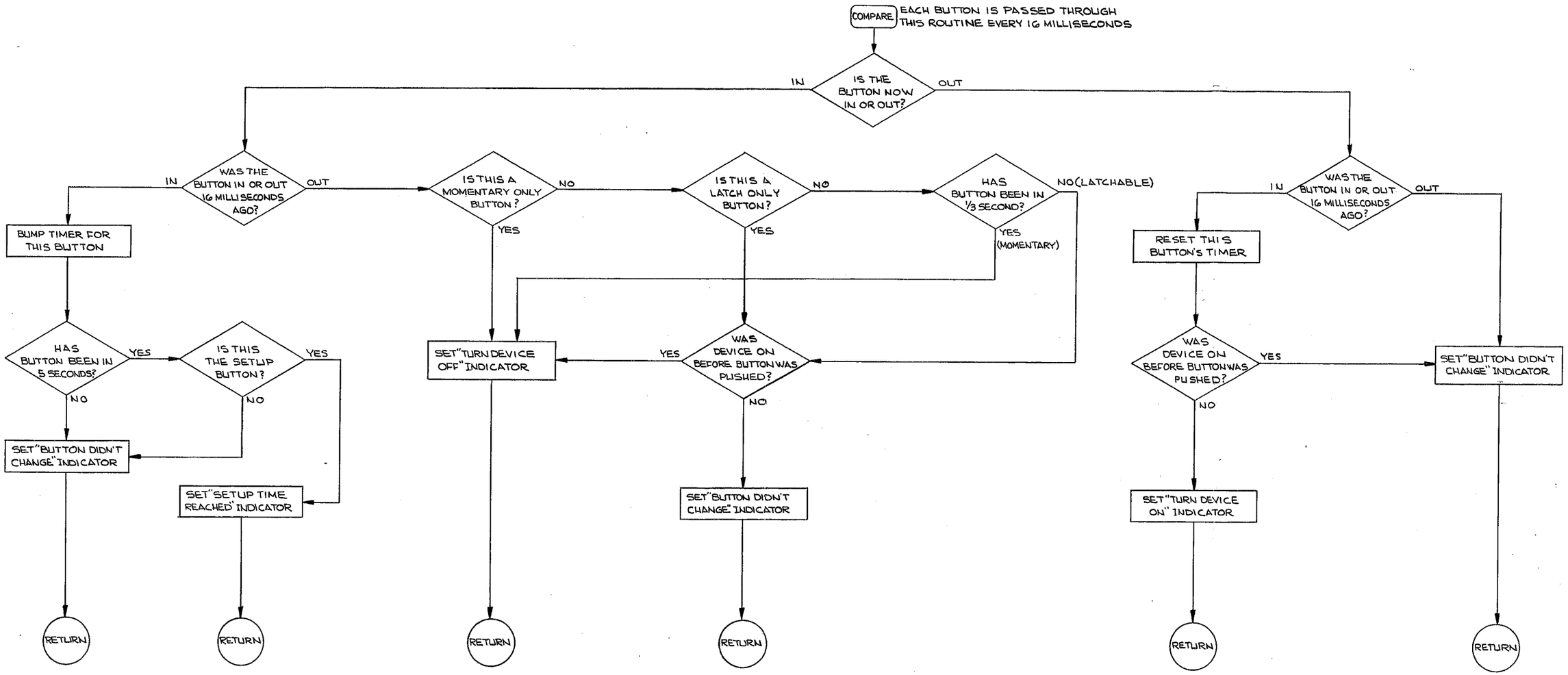
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

ELECTRONIC SWITCH ACTION



	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B.MAEZ	5-24-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

FLOW CHART, MODEL 802, ELECTRONIC SWITCH ACTION

SIZE D | FSCM NO. 95712 | DWG. NO. FC3398 | REV.

SCALE — | SHEET 6 of 7

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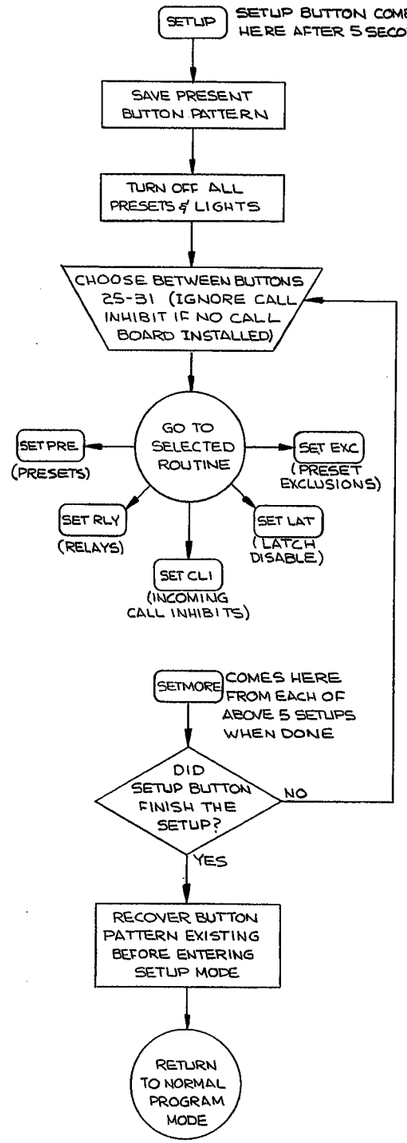
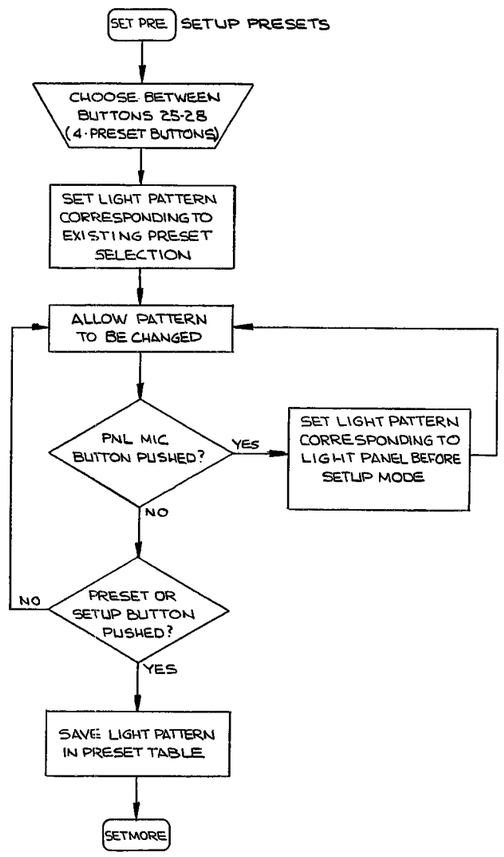
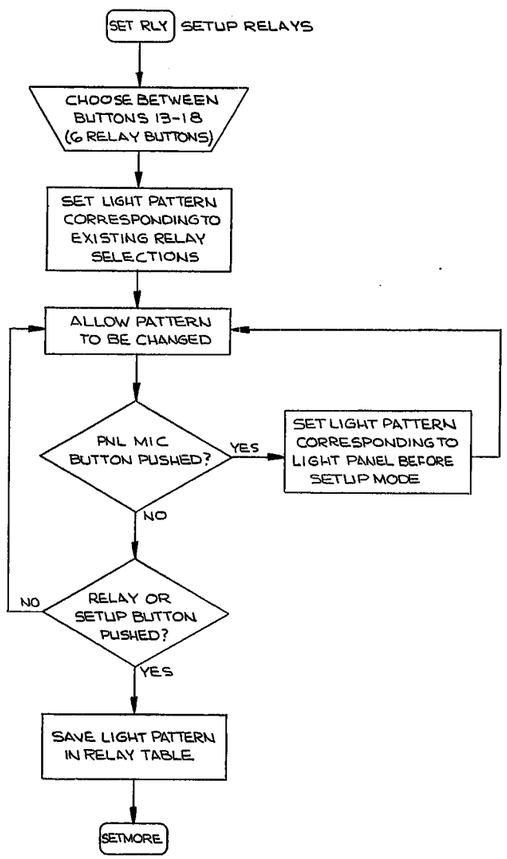
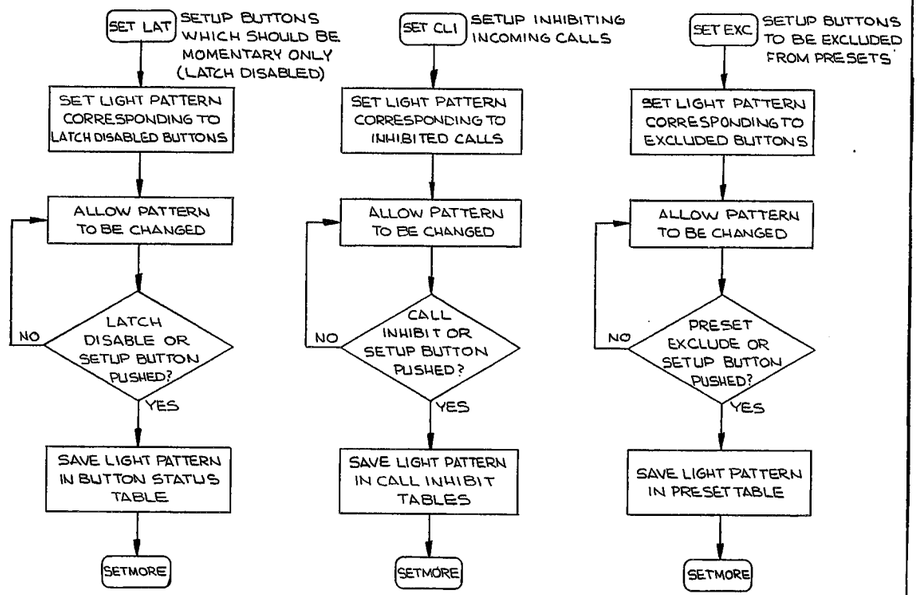
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

SETUP MODE


SETUP
SETUP BUTTON COMES HERE AFTER 5 SECONDS
SAVE PRESENT BUTTON PATTERN
TURN OFF ALL PRESETS & LIGHTS
CHOOSE BETWEEN BUTTONS 25-31 (IGNORE CALL INHIBIT IF NO CALL BOARD INSTALLED)
GO TO SELECTED ROUTINE
SET PRE (PRESETS)
SET EXC (PRESET EXCLUSIONS)
SET RLY (RELAYS)
SET LAT (LATCH DISABLE)
SET CLI (INCOMING CALL INHIBITS)
SETMORE
COMES HERE FROM EACH OF ABOVE 5 SETUPS WHEN DONE
DID SETUP BUTTON FINISH THE SETUP?
NO
YES
RECOVER BUTTON PATTERN EXISTING BEFORE ENTERING SETUP MODE
RETURN TO NORMAL PROGRAM MODE






SET LAT
SETUP BUTTONS WHICH SHOULD BE MOMENTARY ONLY (LATCH DISABLED)
SET LIGHT PATTERN CORRESPONDING TO LATCH DISABLED BUTTONS
ALLOW PATTERN TO BE CHANGED
LATCH DISABLE OR SETUP BUTTON PUSHED?
NO
YES
SAVE LIGHT PATTERN IN BUTTON STATUS TABLE
SETMORE
SET CLI
SETUP INHIBITING INCOMING CALLS
SET LIGHT PATTERN CORRESPONDING TO INHIBITED CALLS
ALLOW PATTERN TO BE CHANGED
CALL INHIBIT OR SETUP BUTTON PUSHED?
NO
YES
SAVE LIGHT PATTERN IN CALL INHIBIT TABLES
SETMORE
SET EXC
SETUP BUTTONS TO BE EXCLUDED FROM PRESETS
SET LIGHT PATTERN CORRESPONDING TO EXCLUDED BUTTONS
ALLOW PATTERN TO BE CHANGED
PRESET EXCLUDE OR SETUP BUTTON PUSHED?
NO
YES
SAVE LIGHT PATTERN IN PRESET TABLE
SETMORE

	802
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO. 800 SERIES

APPROVALS	DATE
DRAWN B.MAEZ	5-25-83
CHECKED	
ISSUED	

RTS SYSTEMS BURBANK, CALIFORNIA

FLOW CHART, MODEL 802, SETUP MODES

SIZE D | FSCM NO. 03972 | DWG. NO. FC3398 | REV.
SCALE — | SHEET 7 of 7

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	REVISED PER ECO # 2222	5-12-88	
	B	REVISED PER ECO # 2359	12-12-88	
	C	REVISED PER ECO # 2391	1-23-89	
	D	REVISED PER ECO # 2406	2-17-89	

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE CARBON FILM, 1/4 WATT, ±5%.
2. CAPACITANCE VALUES ARE SHOWN: MICROFARADS/VOLTS.
3. THE FOLLOWING ITEMS ARE NOT INSTALLED: U12, U17, U18, W1.

4. U22 IS A PROGRAMMABLE SOUND GENERATOR. U22 IS INSTALLED ONLY IN UNITS WITH THE CHIME OPTION.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 800	RTS SYSTEMS BURBANK, CALIFORNIA	
	APPROVALS	DATE	SCHEMATIC DIAGRAM, CPU BOARD, MODEL 802, Z-80C VERSION
MATERIAL	DRAWN R. NEILSON	4-16-87	
FINISH	CHECKED		
DO NOT SCALE DRAWING	ISSUED		SIZE D | FSCM NO. 60572 | DWG. NO. SD 5336 | REV. D
			SCALE — | SHEET 1 OF 2

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
		SEE SHT 1		

DATA BUS

ADDRESS BUS

RST

CLK

M1

IORQ

+5

C17 0.1

U13 Z84C30 (CTC)

CS0 CS1 CLK M1 IORQ RST IEI IEO ZCTO1 ZCTO2 RD CS INTR

BA0 BA1

CT SEL

INTR

C18 0.1

U14 74HC541

D0 D1 D2 D3 D4 D5 D6 D7 OE

Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7

R12-R19 10.Ω

J2

DATA OUTPUT PORT

DEV SEL

C20 0.1

U16 Z84C40 (SIO)

B/A C/D CLK M1 IORQ RST IEI IEO TxRxCA TxRxCB TxA RxA TxB RxB N.C. 22,23,18,19 RD CE INTR

D0 D1 D2 D3 D4 D5 D6 D7

RTS

SI SEL

R29 10K

W1 HALF DUPLEX

U2

C23 0.1

U17 75176

Tx Rx

R30 10Ω

R31 10Ω

R34 10K

R35 10K

D7 IN4148

D3 IN4148

D9 IN4148

D5 IN4148

C24 0.1

U18 75176

N.C. Tx Rx

R32 10Ω

R33 10Ω

R36 10K

R37 10K

D4 IN4148

D8 IN4148

D10 IN4148

D6 IN4148

J6

Rs 232 Tx

Rs 232 Rx

TO J107 ON REAR PANEL

J11

Rs 422 Rx +

Rs 422 Tx/Rx -

Rs 422 Rx -

Rs 422 Tx/Rx -

C21 0.1

U19 MAX232 Rs232 I/F DRIVER CONVERTER

Vcc Rs IN Rs OUT TTL IN TTL OUT -10V +10V GND

(Tx) (Rx)

C26 22/16 TANT

C27 22/16 TANT

C22 22/16 TANT

C25 22/16 TANT

R28 10K

C19 0.1

U15 74HC541

R20-R27 10K

J3

DATA INPUT PORT

IN SEL

R38 10K

CHM CLK

CHM SEL

WR

U8

U1 74HC00

C30 0.1

CE WE READY

SN76496 U22 (CHIME OPTION)

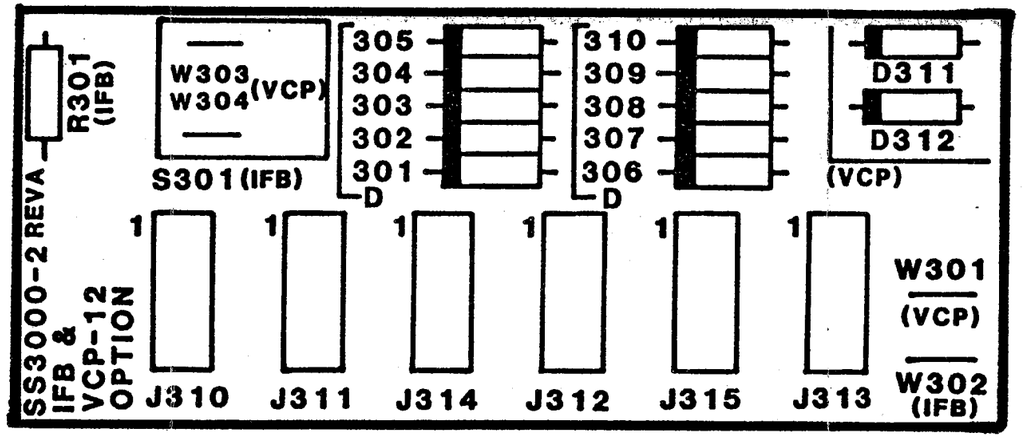
J10

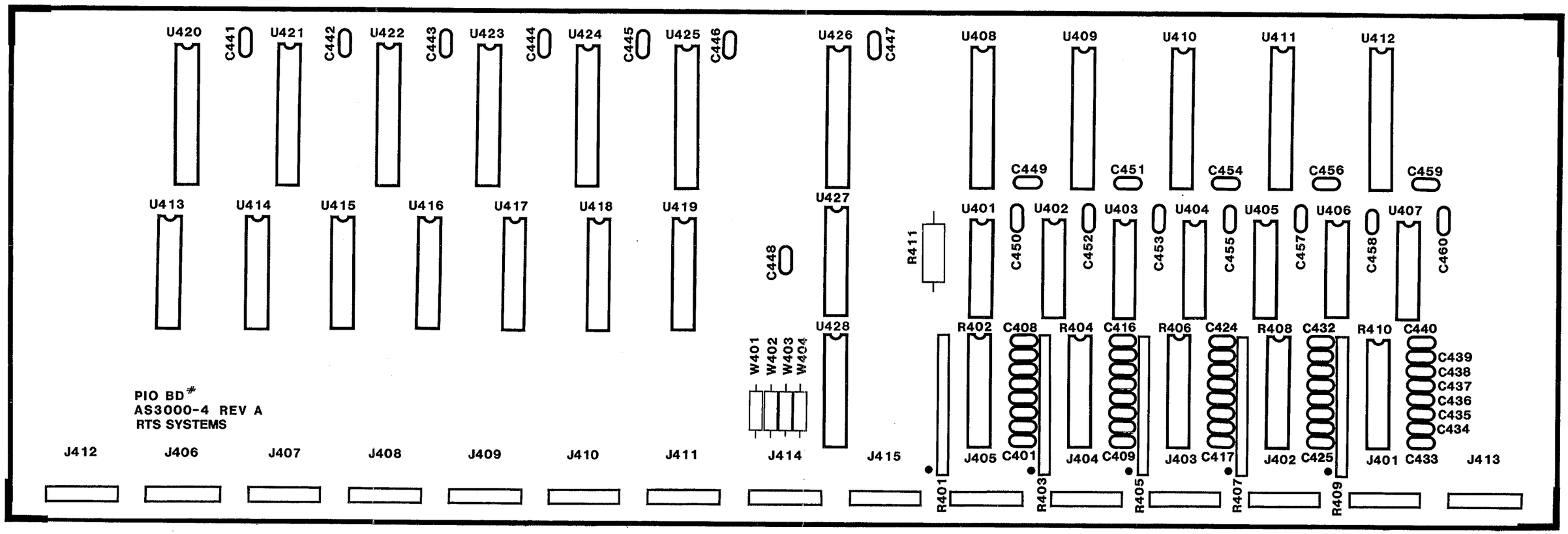
TO J152 ON MOTHER BOARD CHIME AUDIO OUTPUT

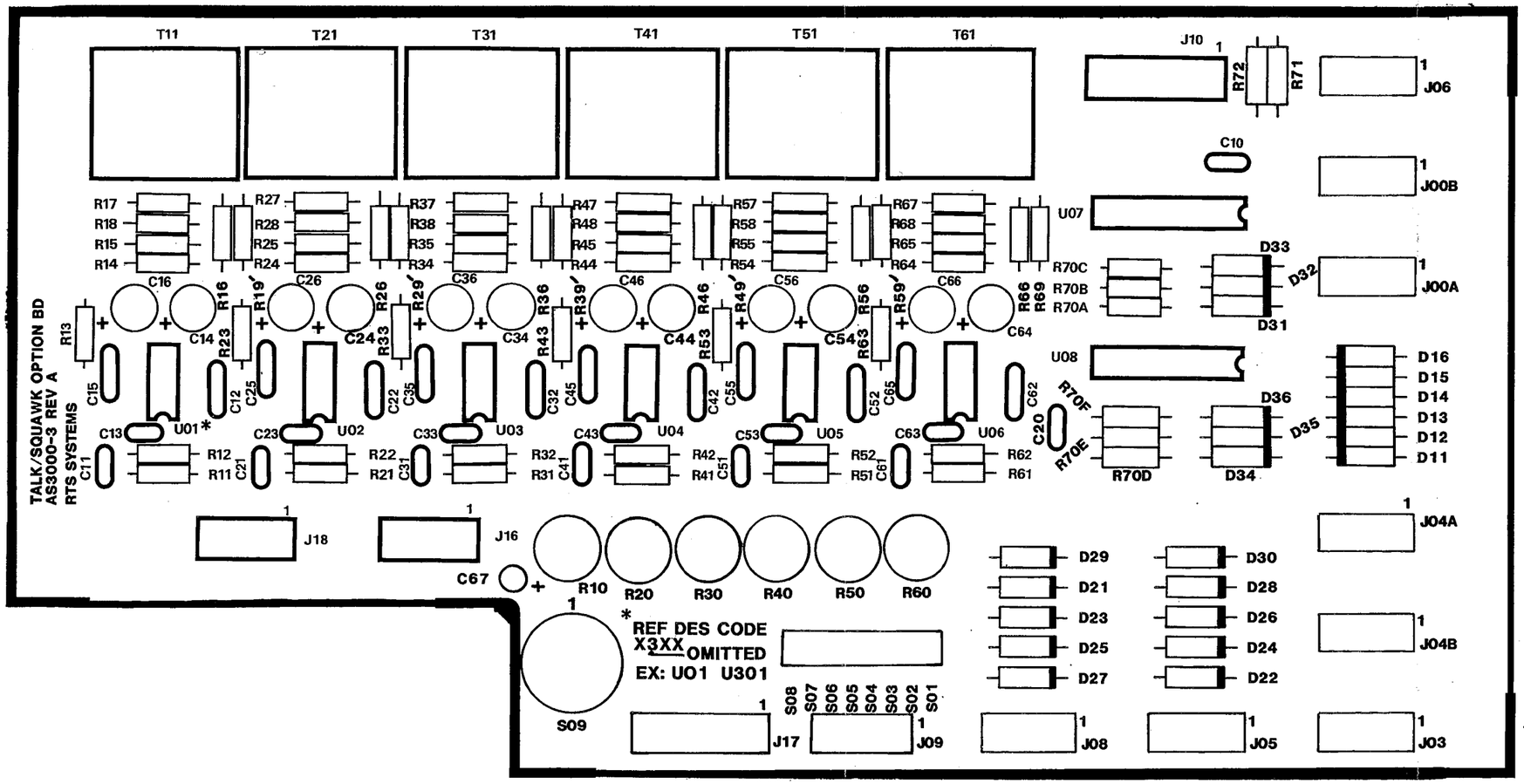
U21 74HC 573

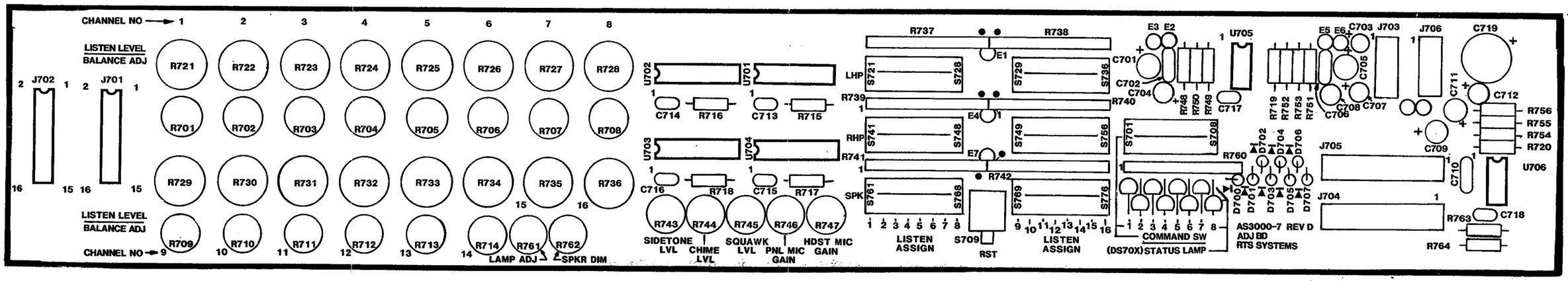
C33 0.1

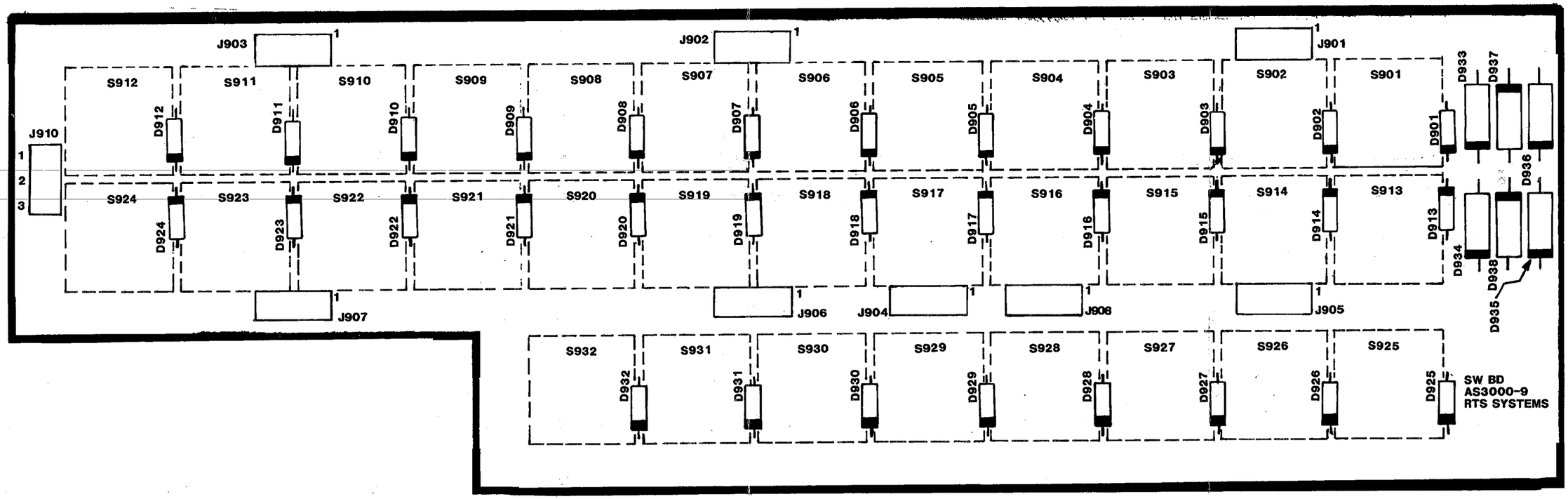
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO. SERIES 800	RTS SYSTEMS BURBANK, CALIFORNIA	
MATERIAL	APPROVALS	DATE	SCHEMATIC DIAGRAM, CPU BOARD, MODEL 802, Z-80C VERSION
FINISH	DRAWN R. NEILSON	4-16-87	
DO NOT SCALE DRAWING	CHECKED		
	ISSUED		SIZE D FSCM NO. 60572 DWG. NO. SD 5336 REV. D
			SCALE — SHEET 2 OF 2

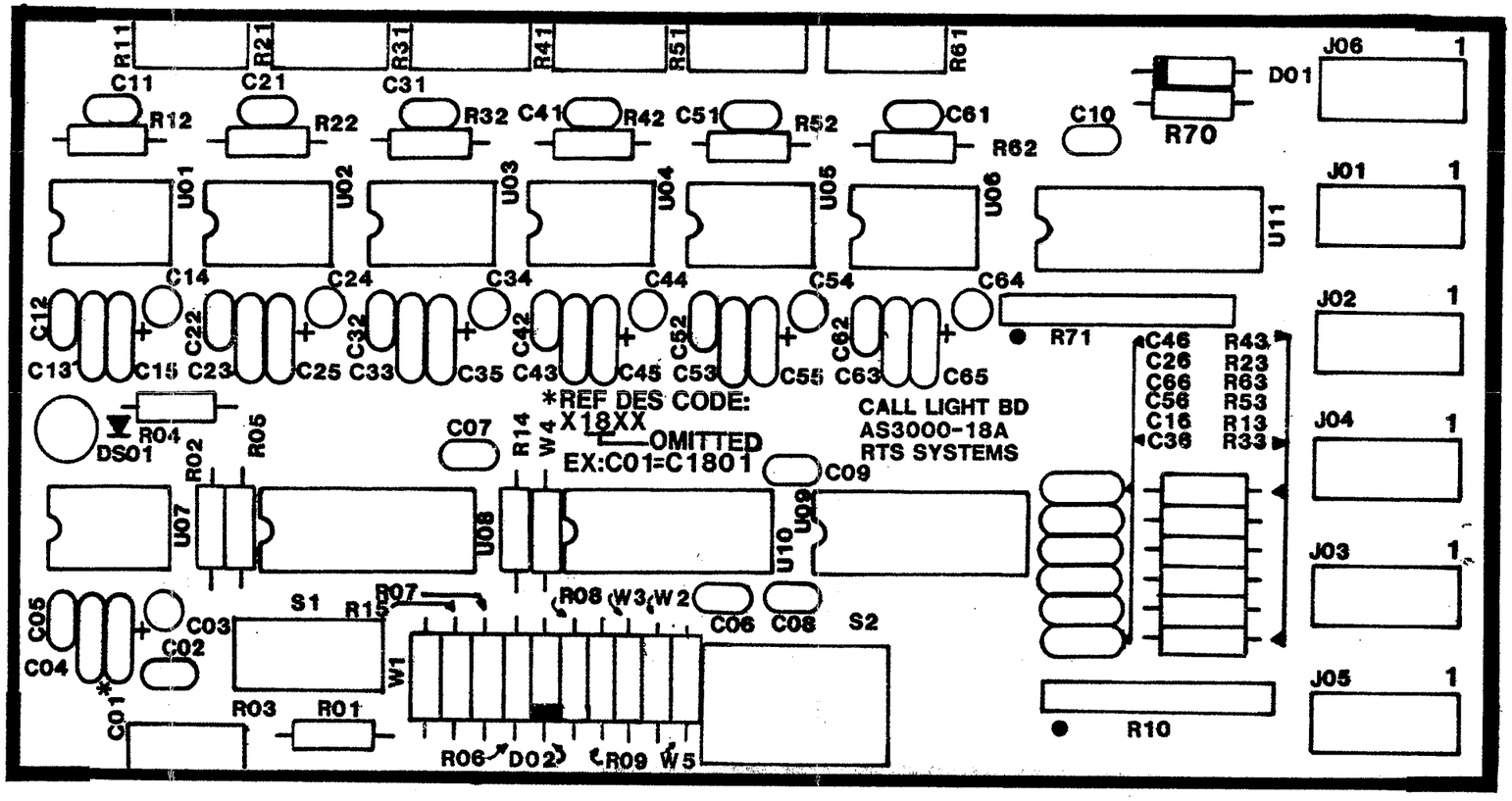

SS3000-2 REVA
IFB & VCP-12 OPTION
R301 (IFB)
W303
W304 (VCP)
S301 (IFB)
305
304
303
302
301
D
310
309
308
307
306
D
D311
D312
(VCP)
1
J310
J311
J314
J312
J315
J313
W301 (VCP)
W302 (IFB)


U420
C441
U421
C442
U422
C443
U423
C444
U424
C445
U425
C446
U426
C447
U427
C448
U428
U408
C449
U409
C451
U410
C454
U411
C456
U412
C459
R411
U401
C450
U402
C452
U403
C453
U404
C455
U405
C457
U406
C458
U407
C460
U413
U414
U415
U416
U417
U418
U419
W401
W402
W403
W404
R401
R402
C408
R404
C416
R406
C424
R408
C432
R410
C440
C439
C438
C437
C436
C435
C434
PIO BD#
AS3000-4 REV A
RTS SYSTEMS
J412
J406
J407
J408
J409
J410
J411
J414
J415
J405
C401
J404
C409
J403
C417
J402
C425
J401
C433
J413
R401
R403
R405
R407
R409


TALK/SQUAWK OPTION BD
AS3000-3 REV A
RTS SYSTEMS
T11
T21
T31
T41
T51
T61
J10
R72
R71
J06
C10
J00B
U07
R70C
R70B
R70A
D33
D32
D31
J00A
U08
D16
D15
D14
D13
D12
D11
R70F
R70E
R70D
D36
D35
D34
J04A
J04B
J18
J16
C67
R10
R20
R30
R40
R50
R60
D29
D21
D23
D25
D27
D30
D28
D26
D24
D22
S09
S08
S07
S06
S05
S04
S03
S02
S01
J17
J09
J08
J05
J03
* REF DES CODE X3XX OMITTED
EX: UO1 U301

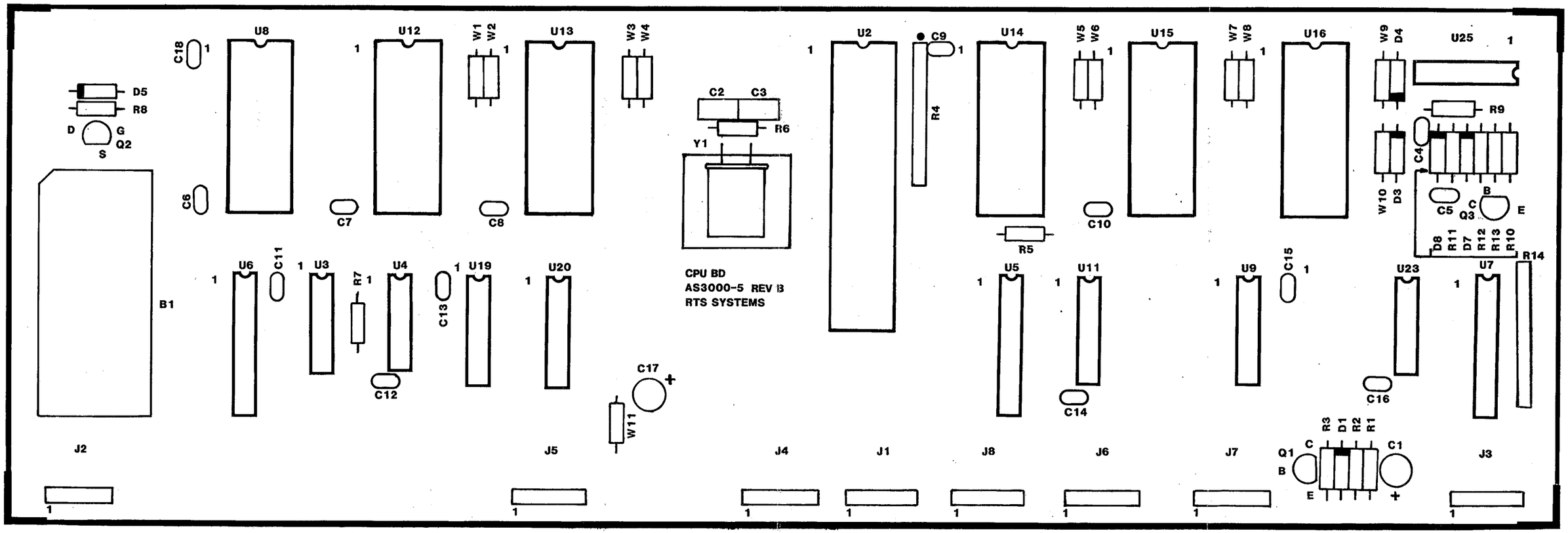

CHANNEL NO → 1 2 3 4 5 6 7 8
LISTEN LEVEL
BALANCE ADJ
J702
J701
R721 R722 R723 R724 R725 R726 R727 R728
R701 R702 R703 R704 R705 R706 R707 R708
R729 R730 R731 R732 R733 R734 R735 R736
R709 R710 R711 R712 R713 R714 R761 R762
LISTEN LEVEL
BALANCE ADJ
CHANNEL NO → 9 10 11 12 13 14 15 16
LAMP ADJ
SPKR DIM
U702 U701 U703 U704
C714 R716 C713 R715 C716 R718 C715 R717
R743 R744 R745 R746 R747
SIDETONE LVL
CHIME LVL
SQUAWK LVL
PNL MIC GAIN
HDST MIC GAIN
R737 R738 R739 R740 R741 R742
E1 E2 E3 E4 E5 E6 E7
LHP RHP SPK
S721 S728 S729 S736
S741 S748 S749 S756
S761 S768 S769 S776
LISTEN ASSIGN
S709
RST
LISTEN ASSIGN
C701 C702 C704
R748 R750 R749
C717
U705
C703 J703
C705 C708 C707 C706
R719 R752 R753 R751
J706
C719
C711 C712
R756 R755 R754 R720
C709
C710
U706
C718
R763
R764
J705
J704
D702 D704 D706
D701 D703 D705 D707
R760
S701 S708
COMMAND SW
(DS70X) STATUS LAMP
AS3000-7 REV D
ADJ BD
RTS SYSTEMS


J903
J902
J901
S912
S911
S910
S909
S908
S907
S906
S905
S904
S903
S902
S901
D912
D911
D910
D909
D908
D907
D906
D905
D904
D903
D902
D901
D933
D937
D936
J910
1
2
3
S924
S923
S922
S921
S920
S919
S918
S917
S916
S915
S914
S913
D924
D923
D922
D921
D920
D919
D918
D917
D916
D915
D914
D913
D934
D938
D935
J907
J906
J904
J908
J905
S932
S931
S930
S929
S928
S927
S926
S925
D932
D931
D930
D929
D928
D927
D926
D925
SW BD
AS3000-9
RTS SYSTEMS


R11
R21
R31
R41
R51
R61
C11
C21
C31
R12
R22
R32
C41
R42
C51
R52
C61
R62
C10
R70
D01
J06
1
U01
U02
U03
U04
U05
U06
U11
J01
C14
C24
C34
C44
C54
C64
C12
C22
C32
C42
C52
C62
R71
J02
C13
C15
C23
C25
C33
C35
C43
C45
C53
C55
C63
C65
C46
R43
C26
R23
C66
R63
C56
R53
C16
R13
C36
R33
J04
*REF DES CODE:
X18XX
OMITTED
EX:C01=C1801
CALL LIGHT BD
AS3000-18A
RTS SYSTEMS
DS01
R04
R02
R05
C07
R14
W4
C09
U07
U08
U09
U10
J03
S1
R15
R07
R08
W3
W2
C06
C08
S2
C05
C03
C04
C02
W1
C01
R03
R01
R06
D02
R09
W5
R10
J05

U601
U602
U603
C601
R607
C602
R608
C603
R609
1
R601
R602
R603
1
J603
J602
J601
1
T601
R604
T602
R605
R606
T603
RTS SYSTEMS
4 WIRE BD
SS 3000-6 REV A
T604
T605
T606

SH IN POWER INPUT
TB16
TB15 SPEAKER
EXT
HI LO SH MIC OUTPUT+2 TB14
HI LO SH MIC TB13
HI LO SH PGM 2 TB12
HI LO SH PGM 1 INPUTS TB11
V+ HI LO SH EXT MIC TB10
R L C HI LO PHONE EXT HDST MIC TB9
5 4 3 2 1 SQ VCP CONN TB8
HI LO NC C NO MIC SW (FOOT SW) TB7
NC C NO RELAY 6 TB6
NC C NO RELAY 5 TB5
NC C NO RELAY 4 TB4
NC C NO RELAY 3 TB3
NC C NO RELAY 2 TB2
NC C NO RELAY 1 TB1
E28
S105 INT SPK SW
LEVEL S4
MODE S3
LEVEL S2
MODE S1
OUTPUT+1
CUT TRACE FOR AUX PGM
SS3000-1 REV F
MADE IN USA
RTS SYSTEMS,INC
BURBANK,CA,USA
CH 1 T211
CH 2 T221
CH 3 T231
CH 4 T241
CH 5 T251
CH 6 T261
CH 13 T271
CH 14 T281
ISO T291
HDST MIC LIMITER
BRIGHTNESS
PNL MIC LIMITER
HDST MIC J10
LAMP PS
ISO BAL
ISO LISTEN LEVEL
PNL MIC


U8
U12
U13
U2
U14
U15
U16
U25
C18
C6
C7
C8
C9
C10
W1
W2
W3
W4
W5
W6
W7
W8
W9
D4
D5
R8
D
G
S
Q2
R4
R5
R9
C4
C5
Q3
B
C
E
W10
D3
D8
R11
D7
R12
R13
R10
R14
C2
C3
R6
Y1
CPU BD
AS3000-5 REV B
RTS SYSTEMS
U6
C11
U3
R7
U4
C12
C13
U19
U20
C17
W11
U5
U11
C14
U9
C15
C16
U23
U7
R3
D1
R2
R1
Q1
C1
B1
J2
J5
J4
J1
J8
J6
J7
J3